

**Clouds and the Earth's Radiant Energy System  
(CERES)**

**Data Management System**

**ERBE-like Subsystems (2.0 & 3.0)**

**Release 2.0 Test Plan  
Version2**

**Primary Authors**

*Lee-hwa Chang, Susan H. Snell*

Science Applications International Corporation (SAIC)  
One Enterprise Parkway  
Hampton, Virginia 23666

Data Management Office  
Atmospheric Sciences Division  
NASA Langley Research Center  
Hampton, VA 23681-0001

April 1998

## TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
1.0 Introduction .....	1
1.1 Document Overview .....	1
1.2 Subsystem Overview .....	2
1.2.1 Subsystem 2.0 (ERBE-like Inversion) .....	2
1.2.2 Subsystem 3.0 (ERBE-like Daily Data Base and Monthly Time/Space Averaging) .....	2
2.0 Test Environment .....	4
2.1 External Interface Requirements .....	4
2.2 Directory Structure and File Descriptions .....	5
3.0 Software and Data File Installation Procedures .....	6
3.1 Installation .....	6
3.2 Compilation .....	6
4.0 Test and Evaluation Procedures .....	7
4.1 Stand-alone Test Procedures .....	7
4.2 Normal Operating Procedures .....	13
4.3 Evaluation Procedures .....	14
4.3.1 Visual Inspection .....	14
4.3.2 Compare Programs .....	14
4.3.3 Web Browser .....	17
4.3.3.1 Subsystem 2.0 .....	17
4.3.3.2 Subsystem 3.0 .....	18
References .....	19
APPENDIX A Acronyms and Abbreviations .....	A-1
APPENDIX B Directory Structure Diagrams .....	B-1
APPENDIX C File Descriptions .....	C-1

## **LIST OF FIGURES**

<u>Figure</u>	<u>Page</u>
Figure B-1. Directory Structure for the ERBE-like Tar File (1 of 8) . . . . .	B-1

## LIST OF TABLES

Table		Page
Table C.1-1.	Scripts (\$CERESHOME/erbelike/bin) .....	C-1
Table C.1-2.	Executables (\$CERESHOME/erbelike/bin) .....	C-2
Table C.2-1.	Processing Control Files (\$CERESHOME/erbelike/rcf) .....	C-3
Table C.3-1.	Fortran 90 Source Code - snow (\$CERESHOME/erbelike/src/snow) .....	C-4
Table C.3-1.1	Software Management Files- snow (\$CERESHOME/erbelike/smf) .....	C-5
Table C.3-2.	Fortran 90 Source Code - inv (\$CERESHOME/erbelike/src/inv) .....	C-5
Table C.3-3.	Fortran 90 Source Code - es8hdf (\$CERESHOME/erbelike/src/es8hdf) .....	C-7
Table C.3-4.	Fortran 90 Source Code - soldec (\$CERESHOME/erbelike/src/soldec) .....	C-8
Table C.3-5.	Fortran 90 Source Code - pres4 (\$CERESHOME/erbelike/src/pres4) .....	C-8
Table C.3-6.	Fortran 90 Source Code - ddbint (\$CERESHOME/erbelike/src/ddbint) .....	C-9
Table C.3-7.	Fortran 90 Source Code - ddbupd (\$CERESHOME/erbelike/src/ddbupd) .....	C-9
Table C.3-8.	Fortran 90 Source Code - ddbuer (\$CERESHOME/erbelike/src/ddbuer) .....	C-10
Table C.3-9.	Fortran 90 Source Code - ddbsrt (\$CERESHOME/erbelike/src/ddbsrt) .....	C-11
Table C.3-10.	Fortran 90 Source Code - mtsa1 (\$CERESHOME/erbelike/src/mtsa1) .....	C-12
Table C.3-11.	Fortran 90 Source Code - es4 (\$CERESHOME/erbelike/src/es4) .....	C-13
Table C.3-12.	Fortran 90 Library Files - es4hdf (\$CERESHOME/erbelike/src/es4hdf) .....	C-14
Table C.3-13.	Fortran 90 Library Files - scnlib (\$CERESHOME/erbelike/src/scnlib) .....	C-15

## LIST OF TABLES

Table		Page
Table C.3-14.	Fortran 90 Library Files - tsalib (\$CERESHOME/erbelike/src/tsalib) . . . . .	C-16
Table C.4-1.	Ancillary Input Data (\$CERESHOME/erbelike/data/ancillary/static) . . . . .	C-19
Table C.5-1.	Primary Input Data (\$CERESHOME/) . . . . .	C-20
Table C.6-1.	Data and Metadata Products (\$CERESHOME/erbelike/data/out_exp/data/) . . . . .	C-21
Table C.7-1.	Message Files (\$CERESHOME/erbelike/data/runlogs) . . . . .	C-23
Table C.9-1.	QC Reports (\$CERESHOME/erbelike/data/out_exp/data/) . . . . .	C-25
Table C.9-2.	Runlogs (\$CERESHOME/erbelike/data/out_exp/runlogs) . . . . .	C-26
Table C.10-1.	Comparison Software (\$CERESHOME/erbelike/test_suites) . . . . .	C-27
Table C.11.1-1.	ERBE-like Inversion Monthly QC Reports (\$CERESHOME/erbelike/Web/CQCI_monthly) . . . . .	C-28
Table C.11.2-1.	Source Code - ES8 (\$CERESHOME/erbelike/Web/graphics/ES8/src) . . . . .	C-28
Table C.11.2-2.	Include Files - ES8 (\$CERESHOME/erbelike/Web/graphics/ES8/src) . . . . .	C-29
Table C.11.2-3.	Scripts - ES8 (\$CERESHOME/erbelike/Web/graphics/ES8/csh) . . . . .	C-30
Table C.11.2-4.	Ancillary Data - ES8 (\$CERESHOME/erbelike/Web/graphics/ES8/anc) . . . . .	C-30
Table C.11.2-5.	Source Code - ES4 (\$CERESHOME/erbelike/Web/graphics/ES4/src) . . . . .	C-30
Table C.11.2-6.	Scripts - ES4 (\$CERESHOME/erbelike/Web/graphics/ES4/csh) . . . . .	C-31
Table C.11.2-7.	Ancillary Data - ES4 (\$CERESHOME/erbelike/Web/graphics/ES4/anc) . . . . .	C-32
Table C.11.3-1.	ERBE-like Graphics for Snow Ancillary Data (\$CERESHOME/erbelike/Web/snow/src) . . . . .	C-32

## **1.0 Introduction**

The Clouds and the Earth's Radiant Energy System (CERES) is a key component of the Earth Observing System (EOS). The CERES instruments are improved models of the Earth Radiation Budget Experiment (ERBE) scanner instruments, which operated from 1984 through 1990 on the National Aeronautics and Space Administration's (NASA) Earth Radiation Budget Satellite (ERBS) and on the National Oceanic and Atmospheric Administration's (NOAA) operational weather satellites NOAA-9 and NOAA-10. The strategy of flying instruments on Sun-synchronous, polar orbiting satellites, such as NOAA-9 and NOAA-10, simultaneously with instruments on satellites that have precessing orbits in lower inclinations, such as ERBS, was successfully developed in ERBE to reduce time sampling errors. CERES will continue that strategy by flying instruments on the polar orbiting EOS platforms simultaneously with an instrument on the Tropical Rainfall Measuring Mission (TRMM) spacecraft, which has an orbital inclination of 35 degrees. In addition, to reduce the uncertainty in data interpretation, and to improve the consistency between the cloud parameters and the radiation fields, CERES will include cloud imager data and other atmospheric parameters. The first CERES instrument is scheduled to be launched on the TRMM spacecraft in 1997. Additional CERES instruments will fly on the EOS-AM platforms, the first of which is scheduled for launch in 1998, and on the EOS-PM platforms, the first of which is scheduled for launch in 2000.

### **1.1 Document Overview**

The Release 2 software delivery to the Langley Distributed Active Archive Center (DAAC) for the ERBE-like Subsystems (2.0 and 3.0) consists of tar files and documentation describing the data and software contained in the tar files.

The tar files contain the ERBE-like Release 2 software and the ancillary data sets required for the software to execute. The tar files also contain comparison software and output data files that were generated on the science computing facility, "samantha." A description of the tar files and their content is contained in [Section 2.0](#).

The documentation consists of the Delivery Memo for the ERBE-like Subsystems, this document, and the [CERES Release 2 Test Plan for the ERBE-like Subsystems \(2.0 and 3.0\)](#).

This document provides a description of the ERBE-like Release 2 software and supporting data files and explains the procedures for installing, executing, and testing the software. A section is also included on validating the results of testing the software.

The document is organized as follows:

[\*\*Section 1.0 - Introduction\*\*](#)

[\*\*Section 2.0 - Test Environment\*\*](#)

[\*\*Section 3.0 - Software and Data File Installation Procedures\*\*](#)

[\*\*Section 4.0 - Test and Evaluation Procedures\*\*](#)

[Appendix A](#) - Acronyms and Abbreviations

[Appendix B](#) - Directory Structure Diagrams

[Appendix C](#) - File Description Tables

## 1.2 Subsystem Overview

The ERBE-like Subsystems (2.0 and 3.0) come from the ERBE Subsystems V and VI. Details concerning the conversion process from the ERBE to the CERES ERBE-like code may be found in the CERES Software Requirement Documents for Subsystems 2.0 and 3.0 ([Reference 1](#)). The next two sections provide overviews of these two subsystems.

### 1.2.1 Subsystem 2.0 (ERBE-like Inversion)

The ERBE-like Inversion Subsystem calculates estimates of the radiant flux at the top-of-atmosphere (TOA) based on satellite altitude data from the Instrument Subsystem (1.0). This inversion process is dependent on several factors, including Earth surface features; the extent of cloudiness; and the relative geometry of the spacecraft, the Sun, and the measurement field-of-view. Each radiometric measurement is spectrally corrected to give an unfiltered measurement. The observed scene is determined by a scene identification algorithm based on these unfiltered measurements; using angular distribution models and statistics provided by the CERES Science Team. Estimates of the radiant flux at the TOA are computed based on scene information, geometrical considerations, and the unfiltered measurements. The output of the Inversion Subsystem includes the ES-8 science archival product and the EID-6 which contains averaged regional data and serves as input for Subsystem 3.0.

In addition, daily quality control reports and browse images of selected parameters from the ES-8 product are generated from the on-line script and are available for viewing over the Web following Subsystem 2.0 job completion.

### 1.2.2 Subsystem 3.0 (ERBE-like Daily Data Base and Monthly Time/Space Averaging)

Up to this phase of the processing, data are processed in time-ordered sequence regardless of the location of the measurements. To obtain monthly averages of the radiometric measurements for geographic regions, the data must be made accessible by region. To accomplish this data transition, the time/space averaging has been divided into two separate subsystems: the Daily Data Base (DDB) Subsystem and the Monthly Time/Space Averaging (MTSA) Subsystem.

Daily Data Base Processing. The main function of the Daily Data Base Subsystem is to take the time-sequenced, inverted data from the ERBE-like Inversion Subsystem and store it in a regional accessible data base which contains data for an entire month. The data base is comprised of 36 latitudinal data files and a housekeeping file. The housekeeping file is for validation purposes and provides the necessary information for accessing data from the data base. As each daily file from Inversion is processed, some data items in the housekeeping file are edited.

Monthly Time/Space Averaging. The function of the Monthly Time/Space Averaging Subsystem is to produce monthly averages of shortwave and longwave radiant flux at the TOA on a regional basis. These calculations are made at the spatial resolution of a 2.5-degree region on the Earth's surface. These data are processed for each spacecraft to produce daily averages, monthly hourly averages (each hour averaged for all data during the month), and two grand monthly averages (averages of the daily and monthly hourly averages) for each geographic region. Determination of the averages requires the use of diurnal models which are input to the process. The averages are the basis for preparation of subsequent regional, zonal, and global output products.

Browse images of selected parameters from the ES-4 product are generated from the on-line script and are available for viewing over the Web following Subsystem 3.0 job completion.

## 2.0 Test Environment

ERBE-like Subsystems (2.0 and 3.0) are providing compressed tar files, erbelike.src.tar.Z, erbelike.data.tar.Z, and erbelike.anc.tar.Z to the DAAC as the Release 2 software delivery. The directory structure of the untarred files is shown in [Appendix B](#). The contents of the tar files are categorized according to input data files, software files, and output data files. Tables in [Appendix C](#) show the File Types (table titles) and the path for the directory where the File Type can be found.

### 2.1 External Interface Requirements

Seven Product Generation Executives (PGEs) are used to run the ERBE-like software. PGE2.1P1 generates a binary input file containing geo scene types, albedo, and longwave threshold values for use by the ERBE-like Subsystems. It also makes available geo scene maps and color postscript files for Web applications. PGE 2.2P1 invokes the Subsystem 2.0 ERBE-like inversion, daily data base initialization, and daily data update programs to process the daily FAPs data for the first day of a month. PGE 2.2P2 runs the Subsystem 2 ERBE-like inversion program for FAPs data any day other than the first day of a month. PGE 2.2P3 runs the ERBE-like Subsystem 2.0 for all RAPs data. PGE2.3P1 converts the ES8 output from Subsystem 2.0 to HDF-EOS format. PGE 3.2P1 invokes Subsystem 3.0 ERBE-like daily data base; monthly time/space averaging; and monthly regional, zonal, and global averaging programs for single satellite monthly data processing. PGE 3.3P1 converts the ES4G output from Subsystem 3 to HDF-EOS format. [Tables 2-1](#) and [2-2](#) show the directories that contain the source code for each of these seven ERBE-like PGEs, and it references the tables that contain the description of each of these directories. [Tables C.3-2](#) through [C.3-14](#) contain detailed information for the files contained in the ERBE-like tar files.

Table 2-1. ERBE-like Subsystem 2.0 PGEs

PGE CER2.1P1 (script ss2.1p1)		PGE CER2.2P1 (script CER2.2P1)		PGE CER2.2P2/ CER2.2P3 (script CER2.2P2/ CER2.2P3)		PGE CER2.3P1 (script CER2.3)	
Software Directory	Table Number	Software Directory	Table Number	Software Directory	Table Number	Software Directory	Table Number
snow	<a href="#">C.3-1</a>	inv	<a href="#">C.3-2</a>	inv	<a href="#">C.3-2</a>	es8hdf	<a href="#">C.3-3</a>
./smf	<a href="#">C.3-1.1</a>	ddbint	<a href="#">C.3-6</a>	scnlib	<a href="#">C.3-13</a>		
		ddbupd	<a href="#">C.3-7</a>				
		scnlib	<a href="#">C.3-13</a>				

Table 2-2. ERBE-like Subsystem 3.0 PGEs

PGE CER3.2P1 (script CER3.2P1)		PGE CER3.3P1 (script CER3.3)	
Software Directory	Table Number	Software Directory	Table Number
soldec	C.3-4	es4hdf	C.3-12
pres4	C.3-5		
ddbint	C.3-6		
ddbupd	C.3-7		
ddbuer	C.3-8		
ddbsrt	C.3-9		
mtsa1	C.3-10		
es4	C.3-11		
scnlib	C.3-13		
tsalib	C.3-14		

## 2.2 Directory Structure and File Descriptions

Refer to [Appendix B](#) for Directory Structure Diagrams, and [Appendix C](#) for File Description Tables.

## **3.0 Software and Data File Installation Procedures**

This section describes how to install the ERBE-like software in preparation for making the necessary test runs at the Langley DAAC. The installation procedures include instructions for uncompressed and untarring the ERBE-like files, properly defining environmental variables, and recompiling the ERBE-like programs. Additional information may be found in README files.

### **3.1 Installation**

Make sure that the environment variable "CERESHOME" is correctly set to the directory where you will untar the ERBE-like files and the tar files are at \$CERESHOME. Then "cd" to \$CERESHOME, uncompress and untar the ERBE-like files on your computer:

```
> echo $CERESHOME  
> cd $CERESHOME  
> uncompress erbelike.*.tar.Z  
> tar xf erbelike.src.tar  
> tar xf erbelike.data.tar  
> tar xf erbelike.anc.tar
```

### **3.2 Compilation**

"cd" to \$CERESHOME/erbelike/smf and compile all SNOW programs on your computer:

```
> cd $CERESHOME/erbelike/smf  
> make
```

"cd" to \$CERESHOME/erbelike/bin and compile all ERBE-like programs on your computer:

```
> cd $erbelike/bin  
> compile_all
```

## 4.0 Test and Evaluation Procedures

Section 4.1 explains how to execute ERBE-like Subsystems 2.0 and 3.0 for testing and how to examine execution log files. Section 4.3 describes how to evaluate the results of the testing.

### 4.1 Stand-alone Test Procedures

This package contains two pre-ES8 files to test ERBE-like Subsystem 2.0 PGEs and Subsystem 3.0 single satellite PGE. README files may be found in the "erbelike" directory and subdirectories.

1. "cd" to \$CERESHOME/erbelike/data/scr to execute ERBE-like Subsystems to prevent any file such as core or fort.\* from being written to directories such as bin when errors occur during execution.

```
> cd $CERESHOME/erbelike/data/scr
```

2. To test ERBE-like Subsystem 2.0 to process monthly IIGS data for 199801:

```
> $erbelike/bin/ss2.1p1 199801  
where  
199801      = Data date.
```

This command creates ascii input and PC files  
CER2.1P1\_PCFin\_CERES\_ValidationR2\_000000\_199801  
CER2.1P1\_PCF\_CERES\_ValidationR2\_000000\_199801  
and invokes PGE2.1P1 to produce the monthly output files:

CER\_SNOW\_CERES\_ValidationR2\_000000.199801,  
CER\_SNOW\_CERES\_ValidationR2\_000000.199801.met,  
at \$erbelike/data/ancillary/static/;

CERESweb\_199801.map,  
CERESfmt\_199801.map,  
CERESScr\_199801.ps,  
CERESScr\_199801.gif,  
at \$erbelike/Web/snow/data/.

3. To list the test input pre-ES8 files:

```
> ls -l $CERESHOME/instrument/data/out_comp/CER_PRES8_TRMM-  
PFM_ValidationR2_000020.19971231  
> ls -l $CERESHOME/instrument/data/out_comp/CER_PRES8_TRMM-  
PFM_ValidationR2_000020.19980101
```

4. To test ERBE-like Subsystem 2.0 to process daily data for 01/01/1998:

```
> cd $CERESHOME/erbelike/data/scr
```

```
> $erbelike/bin/CER2.2 19980101 000020 ValidationR2 000000 C TRMM-PFM  
ValidationR2 000 000
```

where

19980101 = Data date,  
000020 = Input configuration code,  
ValidationR2 = Input production strategy,  
000000 = Output configuration code,  
C = Composite (C) or Actual (A) snow map input,  
TRMM-PFM = Sampling strategy,  
ValidationR2 = Output production strategy,  
000 = Software SCCR, and  
000 = Data SCCR.

This command creates ascii input and PC files

CER2.2P1\_PCFin\_TRMM-PFM\_ValidationR2\_000000.19980101  
CER2.2P1\_PCF\_TRMM-PFM\_ValidationR2\_000000.19980101 and  
CER2.2P3\_PCFin\_TRMM-PFM\_ValidationR2\_000000.19980101  
CER2.2P3\_PCF\_TRMM-PFM\_ValidationR2\_000000.19980101  
and invokes PGE2.2P1 and PGE2.2P3 to produce the daily output files:

CER\_EID6F\_TRMM-PFM\_ValidationR2\_000000.19980101,  
CER\_EID6F\_TRMM-PFM\_ValidationR2\_000000.19980101.met,  
CER\_ES8B\_TRMM-PFM\_ValidationR2\_000000.19980101,  
CER\_ES8B\_TRMM-PFM\_ValidationR2\_000000.19980101.met,  
CER\_CQCIF\_TRMM-PFM\_ValidationR2\_000000.19980101,  
CER\_CQCIF\_TRMM-PFM\_ValidationR2\_000000.19980101.met  
at \$erbelike/data/out\_comp/data/inv;

CER\_CQCDF\_TRMM-PFM\_ValidationR2\_000000.19980101,  
CER\_CQCDF\_TRMM-PFM\_ValidationR2\_000000.19980101.met,  
CER\_CXDRF\_TRMM-PFM\_ValidationR2\_000000.19980101,  
CER\_CXDRF\_TRMM-PFM\_ValidationR2\_000000.19980101.met  
for the previous month at \$erbelike/data/out\_comp/data/db;

CER\_CMSGF\_TRMM-PFM\_ValidationR2\_000000.19980101  
CER\_CMSGF\_TRMM-PFM\_ValidationR2\_000000.19980101.met  
CER\_CMSGR\_TRMM-PFM\_ValidationR2\_000000.19980101

CER\_CMSGR\_TRMM-PFM\_ValidationR2\_000000.19980101.met  
at \$erbelike/data/runlogs;

CQCIF\_TRMM-PFM.199801  
at \$erbelike/Web/CQCI\_monthly;

ES8\_19980101\_1\_11.gif  
ES8\_19980101\_1\_12.gif  
ES8\_19980101\_1\_21.gif  
ES8\_19980101\_1\_22.gif  
ES8\_19980101\_1\_31.gif  
ES8\_19980101\_1\_32.gif  
ES8\_19980101\_1\_41.gif  
ES8\_19980101\_1\_42.gif  
ES8\_19980101\_1\_51.gif  
ES8\_19980101\_1\_52.gif  
ES8\_19980101\_1\_61.gif  
ES8\_19980101\_1\_62.gif  
ES8\_19980101\_1\_71.gif  
ES8\_19980101\_1\_72.gif  
ES8\_19980101\_1\_81.gif  
ES8\_19980101\_1\_82.gif  
ES8\_19980101\_1\_9.gif

at \$erbelike/Web/graphics/ES8/gif/ES8\_199801\_1/ES8\_19980101\_1.

5. To test ERBE-like Subsystem 2.0 to process daily data for 12/31/1997:

```
> cd $CERESHOME/erbelike/data/scr
```

```
> $erbelike/bin/CER2.2 19971231 000020 ValidationR2 000000 C TRMM-PFM  
ValidationR2 000 000
```

where

19980101 = Data date,  
000020 = Input configuration code,  
ValidationR2 = Input production strategy,  
000000 = Output configuration code,  
C = Composite (C) or Actual (A) snow map input,  
TRMM-PFM = Sampling strategy,  
ValidationR2 = Output production strategy,  
000 = Software SCCR, and  
000 = Data SCCR.

This command creates ascii input and PC files

CER2.2P2\_PCFin\_TRMM-PFM\_ValidationR2\_000000.19971231  
CER2.2P2\_PCF\_TRMM-PFM\_ValidationR2\_000000.19971231 and  
CER2.2P3\_PCFin\_TRMM-PFM\_ValidationR2\_000000.19971231  
CER2.2P3\_PCF\_TRMM-PFM\_ValidationR2\_000000.19971231

and invokes PGE2.2P2 and PGE2.2P3 to produce the daily output files:

CER\_EID6F\_TRMM-PFM\_ValidationR2\_000000.19971231,  
CER\_EID6F\_TRMM-PFM\_ValidationR2\_000000.19971231.met,  
CER\_ES8B\_TRMM-PFM\_ValidationR2\_000000.19971231,  
CER\_ES8B\_TRMM-PFM\_ValidationR2\_000000.19971231.met,  
CER\_CQCIF\_TRMM-PFM\_ValidationR2\_000000.19971231,  
CER\_CQCIF\_TRMM-PFM\_ValidationR2\_000000.19971231.met  
CER\_EID6R\_TRMM-PFM\_ValidationR2\_000000.19971231,  
CER\_EID6R\_TRMM-PFM\_ValidationR2\_000000.19971231.met,  
CER\_CQCIR\_TRMM-PFM\_ValidationR2\_000000.19971231  
CER\_CQCIR\_TRMM-PFM\_ValidationR2\_000000.19971231.met  
at \$erbelike/data/out\_comp/data/inv;

CER\_CMSGF\_TRMM-PFM\_ValidationR2\_000000.19971231  
CER\_CMSGF\_TRMM-PFM\_ValidationR2\_000000.19971231.met  
CER\_CMSPR\_TRMM-PFM\_ValidationR2\_000000.19971231  
CER\_CMSPR\_TRMM-PFM\_ValidationR2\_000000.19971231.met  
at \$erbelike/data/runlogs;

CQCIF\_TRMM-PFM.199712  
CQCIR\_TRMM-PFM.199712  
at \$erbelike/Web/CQCI\_monthly;

ES8\_19971231\_1\_11.gif  
ES8\_19971231\_1\_12.gif  
ES8\_19971231\_1\_21.gif  
ES8\_19971231\_1\_22.gif  
ES8\_19971231\_1\_31.gif  
ES8\_19971231\_1\_41.gif  
ES8\_19971231\_1\_42.gif  
ES8\_19971231\_1\_51.gif  
ES8\_19971231\_1\_52.gif  
ES8\_19971231\_1\_61.gif  
ES8\_19971231\_1\_62.gif  
ES8\_19971231\_1\_71.gif  
ES8\_19971231\_1\_72.gif  
ES8\_19971231\_1\_81.gif  
ES8\_19971231\_1\_82.gif  
ES8\_19971231\_1\_91.gif  
at \$erbelike/Web/graphics/ES8/gif/ES8\_199712\_1/ES8\_19971231\_1.

6. To test ERBE-like Susbsystem 2.0 to process ES8 HDF-EOS for 12/31/1997:

```
> cd $CERESHOME/erbelike/data/scr
```

```
> $erbelike/bin/CER2.3 19971231 000000 TRMM-PFM ValidationR2 000 000
```

where

19971231 = Data date,  
000000 = Configuration code,  
TRMM-PFM = Sampling strategy,  
ValidationR2 = Production strategy,  
000 = SWsccr, and  
000 = DATAAsccr.

This script creates ascii input and PC files

CER2.3P1\_PCFin\_TRMM-PFM\_ValidationR2\_000000.19971231

CER2.3P1\_PCF\_TRMM-PFM\_ValidationR2\_000000.19971231

and invokes PGE2.3P1 to produce the daily output files:

CER\_ES8\_TRMM-PFM\_ValidationR2\_000000.19971231

CER\_ES8\_TRMM-PFM\_ValidationR2\_000000.19971231.met  
at \$erbelike/data/out\_comp/data/inv.

7. To list the available test input EID6 files for Subsystem 3.0:

```
> ls -l $CERESHOME/erbelike/data/out_comp/data/inv/CER_EID6F*.199712??
```

8. To test ERBE-like Subsystem 3 to process monthly data for 12/1997:

```
> cd $CERESHOME/erbelike/data/scr
```

```
> $erbelike/bin/CER3.2 199712 000000 TRMM-PFM ValidationR2 000 000
```

where

199712 = Data date,  
000000 = Configuration code,  
TRMM-PFM = Sampling strategy,  
ValidationR2 = Production strategy,  
000 = SWsccr, and  
000 = DATAAsccr.

This script creates ascii input and PC files

CER3.2P1\_PCFin\_TRMM-PFM\_ValidationR2\_000000.199712

CER3.2P1\_PCF\_TRMM-PFM\_ValidationR2\_000000.199712

and invokes PGE3.2P1 to produce the monthly output files:

CER\_DQCDF\_TRMM-PFM\_ValidationR2\_000000.199712,

CER\_DQCDF\_TRMM-PFM\_ValidationR2\_000000.199712.met,

CER\_DQCSF\_TRMM-PFM\_ValidationR2\_000000.199712,

CER\_DQCSF\_TRMM-PFM\_ValidationR2\_000000.199712.met

at \$erbelike/data/out\_comp/data/ddb;

CER\_DES9F\_TRMM-PFM\_ValidationR2\_000000.199712,

CER\_DES9F\_TRMM-PFM\_ValidationR2\_000000.199712.met,

CER\_DQCAF\_TRMM-PFM\_ValidationR2\_000000.199712,

CER\_DQCAF\_TRMM-PFM\_ValidationR2\_000000.199712.met,

CER\_DQCBF\_TRMM-PFM\_ValidationR2\_000000.199712,  
CER\_DQCBF\_TRMM-PFM\_ValidationR2\_000000.199712.met,  
CER\_DQCCF\_TRMM-PFM\_ValidationR2\_000000.199712,  
CER\_DQCCF\_TRMM-PFM\_ValidationR2\_000000.199712.met  
at \$erbelike/data/out\_comp/data/mtsa;

CER\_ES4F\_TRMM-PFM\_ValidationR2\_000000.199712,  
CER\_ES4F\_TRMM-PFM\_ValidationR2\_000000.199712.met,  
CER\_ES4G1\_TRMM-PFM\_ValidationR2\_000000.199712,  
CER\_ES4G1\_TRMM-PFM\_ValidationR2\_000000.199712.met,  
CER\_ES4G2\_TRMM-PFM\_ValidationR2\_000000.199712,  
CER\_ES4G2\_TRMM-PFM\_ValidationR2\_000000.199712.met,  
CER\_ES4G3\_TRMM-PFM\_ValidationR2\_000000.199712,  
CER\_ES4G3\_TRMM-PFM\_ValidationR2\_000000.199712.met,  
CER\_ES4G4\_TRMM-PFM\_ValidationR2\_000000.199712,  
CER\_ES4G4\_TRMM-PFM\_ValidationR2\_000000.199712.met,  
CER\_DQCGF\_TRMM-PFM\_ValidationR2\_000000.199712,  
CER\_DQCGF\_TRMM-PFM\_ValidationR2\_000000.199712.met  
at \$erbelike/data/out\_comp/data/s4;

CER\_DMSGF\_TRMM-PFM\_ValidationR2\_000000.199712  
CER\_DMSGF\_TRMM-PFM\_ValidationR2\_000000.199712.met  
at \$erbelike/data/runlogs;

MH\_ALB\_R2520.gif  
MH\_CS\_LW\_R2520.gif  
MH\_LW\_R2520.gif  
MH\_CS\_ALB\_R2520.gif  
MH\_CS\_SW\_R2520.gif  
MH\_SW\_R2520.gif at  
\$erbelike/Web/graphics/ES4/gif/S4G\_199712\_1.

9. To test ERBE-like Subsystem 3.0 to process ES4 HDF-EOS for 12/1997:

> cd \$CERESHOME/erbelike/data/scr

> \$erbelike/bin/CER3.3 199712 000000 TRMM-PFM ValidationR2 000 000  
where  
199712 = Data date,  
000000 = Configuration code,  
TRMM-PFM = Sampling strategy,  
ValidationR2 = Production strategy,  
000 = SWscrr, and  
000 = DATAscrr.

This script creates ascii input and PC files  
CER3.3P1\_PCFin\_TRMM-PFM\_ValidationR2\_000000.199712  
CER3.3P1\_PCF\_TRMM-PFM\_ValidationR2\_000000.199712

and invokes PGE3.3P1 to produce the monthly output files:

```
CER_ES4_TRMM-PFM_ValidationR2_000000.199712  
CER_ES4_TRMM-PFM_ValidationR2_000000.199712.met  
at $erbelike/data/out_comp/data/s4.
```

10. To examine the message files generated by the test runs of PGE 2.1P1, 2.2P1, 2.2P2, 2.2P3, 2.3P1, 3.2P1, and 3.3P1:

```
> cd $erbelike/data/runlogs
```

```
> more CER_CMSGF_TRMM-PFM_ValidationR2_000000.19980101  
> more CER_CMSGR_TRMM-PFM_ValidationR2_000000.19980101  
> more CER_CMSGF_TRMM-PFM_ValidationR2_000000.19971231  
> more CER_CMSGR_TRMM-PFM_ValidationR2_000000.19971231  
> more CER_DMSGF_TRMM-PFM_ValidationR2_000000.199712  
> more CER2.1P1_LogStatus_CERES_TRMM-PFM_ValidationR2_000000.199801  
> more CER2.1P1_LogReport_CERES_TRMM-PFM_ValidationR2_000000.199801  
> more CER2.1P1_LogUser_CERES_TRMM-PFM_ValidationR2_000000.199801  
> more CER2.2P1_LogStatus_CERES_TRMM-PFM_ValidationR2_000000.19980101  
> more CER2.2P1_LogReport_CERES_TRMM-PFM_ValidationR2_000000.19980101  
> more CER2.2P1_LogUser_CERES_TRMM-PFM_ValidationR2_000000.19980101  
> more CER2.2P2_LogStatus_CERES_TRMM-PFM_ValidationR2_000000.19971231  
> more CER2.2P2_LogReport_CERES_TRMM-PFM_ValidationR2_000000.19971231  
> more CER2.2P2_LogUser_CERES_TRMM-PFM_ValidationR2_000000.19971231  
> more CER2.2P3_LogStatus_CERES_TRMM-PFM_ValidationR2_000000.19971231  
> more CER2.2P3_LogReport_CERES_TRMM-PFM_ValidationR2_000000.19971231  
> more CER2.2P3_LogUser_CERES_TRMM-PFM_ValidationR2_000000.19971231  
> more CER2.2P3_LogStatus_CERES_TRMM-PFM_ValidationR2_000000.19980101  
> more CER2.2P3_LogReport_CERES_TRMM-PFM_ValidationR2_000000.19980101  
> more CER2.2P3_LogUser_CERES_TRMM-PFM_ValidationR2_000000.19980101  
> more CER2.3P1_LogStatus_CERES_TRMM-PFM_ValidationR2_000000.19971231  
> more CER2.3P1_LogReport_CERES_TRMM-PFM_ValidationR2_000000.19971231  
> more CER2.3P1_LogUser_CERES_TRMM-PFM_ValidationR2_000000.19971231  
> more CER3.2P1_LogStatus_CERES_TRMM-PFM_ValidationR2_000000.199712  
> more CER3.2P1_LogReport_CERES_TRMM-PFM_ValidationR2_000000.199712  
> more CER3.2P1_LogStatus_CERES_TRMM-PFM_ValidationR2_000000.199712  
> more CER3.3P1_LogReport_CERES_TRMM-PFM_ValidationR2_000000.199712  
> more CER3.3P1_LogUser_CERES_TRMM-PFM_ValidationR2_000000.199712  
> more CER3.3P1_LogUser_CERES_TRMM-PFM_ValidationR2_000000.199712
```

## 4.2 Normal Operating Procedures

Before CERES Subsystems 2.0 and 3.0 can be executed in production, PCFs for PGE 2.1P1, 2.2P1, 2.2P2, 2.2P3, 2.3P1, 3.2P1, and 3.3P1 must be generated and the input for the appropriate day of data must be available. (Please refer to Section 2.1 for PGE descriptions.)

## 4.3 Evaluation Procedures

There are three steps proposed for the evaluation of the ERBE-like data processing:

1. A quick visual inspection of the number of resulting output files, their sizes and location.
2. The use of compare programs.
3. The use of a web browser to examine certain processing results that are made available over the Web from the on-line scripts.

### 4.3.1 Visual Inspection

Prior to porting the ERBE-like code from "samantha" to the DAAC, a series of test runs were made and the resulting data products saved. These data products were ported to the DAAC with the ERBE-like software and are stored on the DAAC under \$CERESHOME/erbelike/data/out\_exp/data. After the ERBE-like code has been run on the DAAC for a particular PGE, the first step in the evaluation process is to determine whether the resulting output files were successfully stored at the DAAC in the proper directory, \$CERESHOME/erbelike/data/out\_comp/data. If so, the number of files and their sizes should compare with those previously generated on "samantha."

[Table C.9-1](#) shows the quality control report and data product files that were generated on "samantha" and ported to the DAAC. Also, quality control reports previously generated on "samantha" may be compared with the results from the DAAC.

### 4.3.2 Compare Programs

Compare utilities (see [Table C.10-1](#)) are provided in the erbelike.src tar file and may be run to compare each science product generated at the DAAC with the expected results previously generated on "samantha." The newly generated science products are located in the erbelike/data/out\_comp directory, and the expected results are located in the erbelike/data/out\_exp/data directory.

There are five sets of compare programs for the ERBE-like Subsystem output products, which are located at \$CERESHOME/erbelike/test\_suites:

cmp_iiggs.f90 Makefile.iiggs	FORTRAN program that compares 2 IIGS files Makefile that compiles "cmp_iiggs.f90"
cmp_es8.f90 Makefile.es8	FORTRAN program that compares 2 ES8 files Makefile that compiles "cmp_es8.f90"
cmp_es9.f90 Makefile.es9	FORTRAN program that compares 2 ES9 files Makefile that compiles "cmp_es9.f90"
cmp_es4.f90 Makefile.es4	FORTRAN program that compares 2 ES4 files Makefile that compiles "cmp_es4.f90"

cmp_es4g.f90	FORTRAN program that compares 2 sets of ES4G files
Makefile.es4g	Makefile that compiles "cmp_es4g.f90"

1. "cd" to \$CERESHOME/erbelike/test\_suites:

```
> cd $CERESHOME/erbelike/test_suites
```

2. To compile the FORTRAN compare programs:

```
> make -f Makefile.iigs  
> make -f Makefile.es8  
> make -f Makefile.es9  
> make -f Makefile.es4  
> make -f Makefile.es4g
```

3. To run the compare programs after the output product files have been created at \$CERESHOME/erbelike/data/out\_comp/data:

```
> cmp_iigs
```

The output file of this compare program is Compare\_SNOW.txt. When the files compared are identical, the output file will contain the statement "FILES ARE THE SAME." If there are any differences, "FILES ARE DIFFERENT" as well as the conflicting data will be written to the output file.

```
> link $CERESHOME/erbelike/data/out_exp/data/inv/CER_ES8B_TRMM-  
PFM_ValidationR2_000000.19980101 ES8_19980101_1.0
```

```
> link $CERESHOME/erbelike/data/out_comp/data/inv/CER_ES8B_TRMM-  
PFM_ValidationR2_000000.19980101 ES8_19980101_1
```

```
> cmp_es8 19980101 1
```

The output file of this compare program is cmp\_es8.out. When the files compared are identical, the output file will contain the statement "No Difference in Data." If there are any differences, an appropriate message as well as the conflicting data will be written to the output file.

```
> link $CERESHOME/erbelike/data/out_exp/data/mtsa/CER_DES9F_TRMM-  
PFM_ValidationR2_000000.199712 ES9_199712_1.0
```

```
> link $CERESHOME/erbelike/data/out_comp/data/mtsa/CER_DES9F_TRMM-  
PFM_ValidationR2_000000.199712 ES9_199712_1
```

```
> cmp_es9 199712 1
```

The output file of this compare program is cmp\_es9.out. When the files compared

are identical, the output file will contain the statement "No Difference in Data." If there are any differences, an appropriate message as well as the conflicting data will be written to the output file.

> link \$CERESHOME/erbelike/data/out\_exp/data/s4/CER\_ES4F\_TRMM-  
PFM\_ValidationR2\_000000.199712 ES4\_199712\_1.0

> link \$CERESHOME/erbelike/data/out\_comp/data/s4/CER\_ES4F\_TRMM-  
PFM\_ValidationR2\_000000.199712 ES4\_199712\_1

> cmp\_es4 199712 1

The output file of this compare program is cmp\_es4.out. When the files compared are identical, the output file will contain the statement "No Difference in Data." If there are any differences, an appropriate message as well as the conflicting data will be written to the output file.

> link \$CERESHOME/erbelike/data/out\_exp/data/s4/CER\_ES4G1\_TRMM-  
PFM\_ValidationR2\_000000.199712 ES4G1\_199712\_1.0

> link \$CERESHOME/erbelike/data/out\_comp/data/s4/CER\_ES4G1\_TRMM-  
PFM\_ValidationR2\_000000.199712 ES4G1\_199712\_1

> link \$CERESHOME/erbelike/data/out\_exp/data/s4/CER\_ES4G2\_TRMM-  
PFM\_ValidationR2\_000000.199712 ES4G2\_199712\_1.0

> link \$CERESHOME/erbelike/data/out\_comp/data/s4/CER\_ES4G2\_TRMM-  
PFM\_ValidationR2\_000000.199712 ES4G2\_199712\_1

> link \$CERESHOME/erbelike/data/out\_exp/data/s4/CER\_ES4G3\_TRMM-  
PFM\_ValidationR2\_000000.199712 ES4G3\_199712\_1.0

> link \$CERESHOME/erbelike/data/out\_comp/data/s4/CER\_ES4G3\_TRMM-  
PFM\_ValidationR2\_000000.199712 ES4G3\_199712\_1

> link \$CERESHOME/erbelike/data/out\_exp/data/s4/CER\_ES4G4\_TRMM-  
PFM\_ValidationR2\_000000.199712 ES4G4\_199712\_1.0

> link \$CERESHOME/erbelike/data/out\_comp/data/s4/CER\_ES4G4\_TRMM-  
PFM\_ValidationR2\_000000.199712 ES4G4\_199712\_1

> cmp\_es4g 199712 1

The output files of this compare program are cmp\_es4g1.out, cmp\_es4g2.out, cmp\_es4g3.out, and cmp\_es4g4.out. When the files compared are identical, the output file will contain the statement "No Difference in Data." If there are any differences, an appropriate message as well as the conflicting data will be written to the output file.

### **4.3.3 Web Browser**

In the operational scenario at the Langley DAAC, the user may go to the ERBE-like Subsystem's CERES Validation Home Page at

[http://lposun.larc.nasa.gov/~dms/cdval/HTML/cdval\\_top.html](http://lposun.larc.nasa.gov/~dms/cdval/HTML/cdval_top.html)

to view resulting browse images. These are described below in [Sections 4.3.3.1](#) and [4.3.3.2](#).

When the ERBE-like Subsystems are run on a Science Computing Facility system, the resulting "gif" images described in [Sections 4.3.3.1](#) and [4.3.3.2](#) must be evaluated by an external viewer, i.e., xv. The CERES Test Coordinator may contact a member of the ERBE-like Subsystem Team to assist in the evaluation of these gif images.

#### **4.3.3.1 Subsystem 2.0**

There are three sets of data that may be used to evaluate the results of Subsystem 2.0. These data may be examined by selecting ES-8, QCplot, and QCreport buttons on the Navigation Bar at the bottom of the CERES Validation Home Page.

##### **ES-8 Browse Products (ES-8 button)**

A program is run from the Subsystem 2.0 script that generates and stores gif files containing browse images of each of the following ES-8 parameters.

1. Total Filtered Radiance
2. Shortwave Filtered Radiance
3. Longwave Filtered Radiance
4. Shortwave Unfiltered Radiance
5. Longwave Unfiltered Radiance
6. Shortwave TOA Flux
7. Longwave TOA Flux
8. ERBE Scene Identification

Each of these parameters for the test day may be selected from the menu in the left frame of the window.

##### **CERES Geo-Scene and Monthly Snow Data (Snow button)**

Color graphics and character representations of geo-scene and monthly snow data are available over the Web from the ERBE-like Subsystem's CERES Data Validation Home Page. To view the data, click on the Snow button, select the file type, year, and data month and then click on the Display Graphic button in the left frame of the window.

### **QC Reports (QCreport button)**

Daily QC reports are generated and stored as a result of each Subsystem 2.0 job. To examine the QC report for the test data set, select the data month, year, and spacecraft, and then select the Display QC Report button in the left frame of the window.

### **QC Plots (QCplot button)**

Plots of the following parameters from the Subsystem 2.0 QC Report are available over the Web from the ERBE-like Subsystem's CERES Validation Home Page.

1. Shortwave TOA Flux
2. Longwave TOA Flux
3. TOA Albedo
4. Daytime Percentage of clear-sky and total cloud cover amount.
5. Nighttime Percentage of clear-sky and total cloud cover amount.
6. Beta Angle

To examine these plots for the test data sets select the data month, year, spacecraft, and plot type, then the select Create Plot button in the left frame of the window.

#### **4.3.3.2 Subsystem 3.0**

Browse images from selected parameters on the ES-4 Science Product are available over the Web and may be used to evaluate Subsystem 3.0.

These data are examined by selecting the ES-4 button on the Navigation Bar at the bottom of the CERES Validation Home Page.

### **ES-4 Browse Products (ES-4 button)**

A program is run from the Subsystem 3.0 script that generates and stores gif files containing browse images of the following ES-4 parameters.

1. Clear-sky Albedo at the TOA
2. All-sky Albedo at the TOA
3. Clear-sky Shortwave Flux at the TOA
4. All-sky Shortwave Flux at the TOA
5. Clear-Sky Longwave Flux at the TOA
6. All-sky Longwave Flux at the TOA

Each of these parameters for the test data set may be selected from the menu in the left frame of the window.

## **References**

1. CERES Data Management System, Software Requirements Documents, Release 1, Version 1, January, 1995

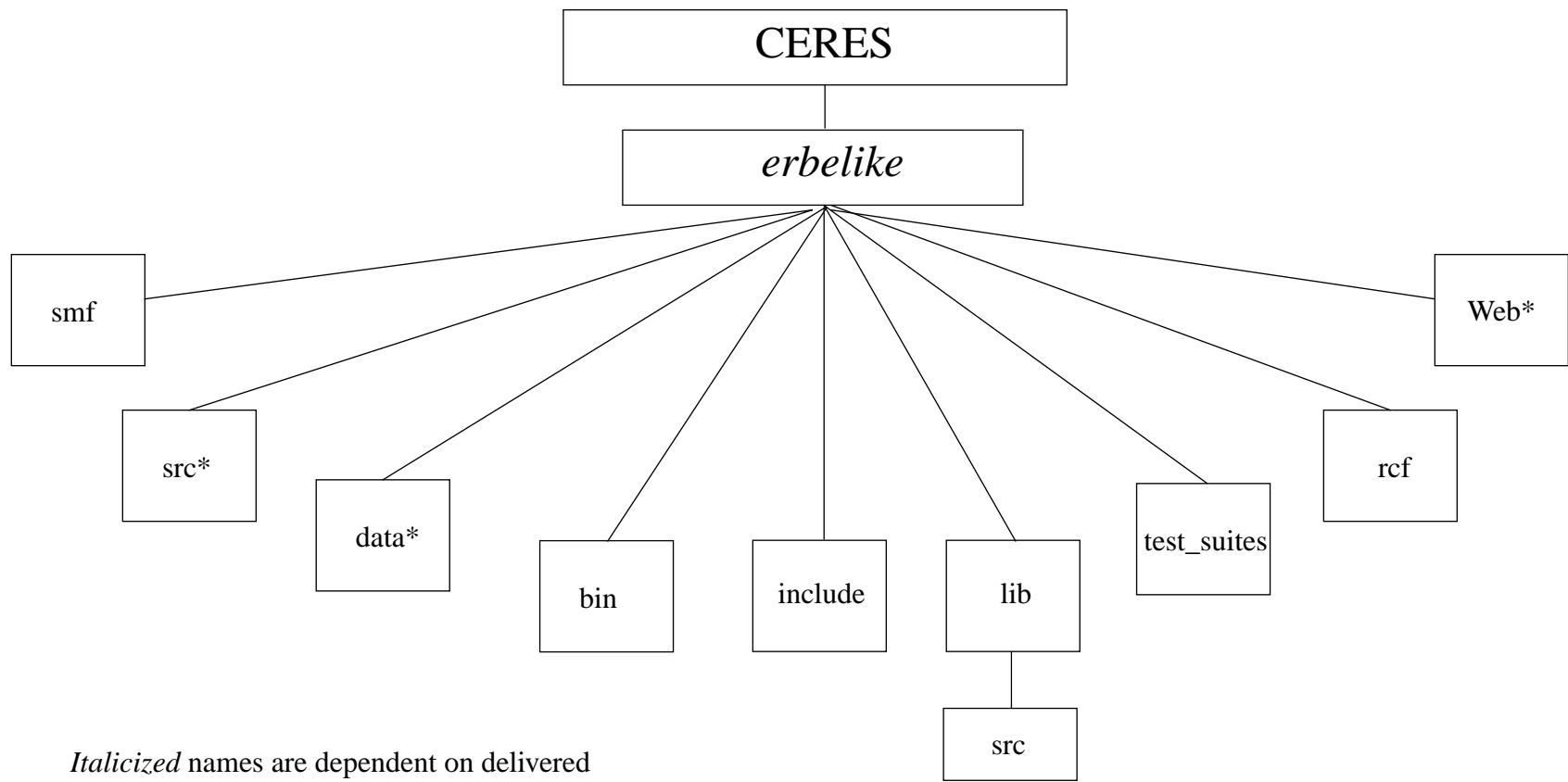
**APPENDIX A**  
**Acronyms and Abbreviations**

## **Appendix A**

### **Acronyms and Abbreviations**

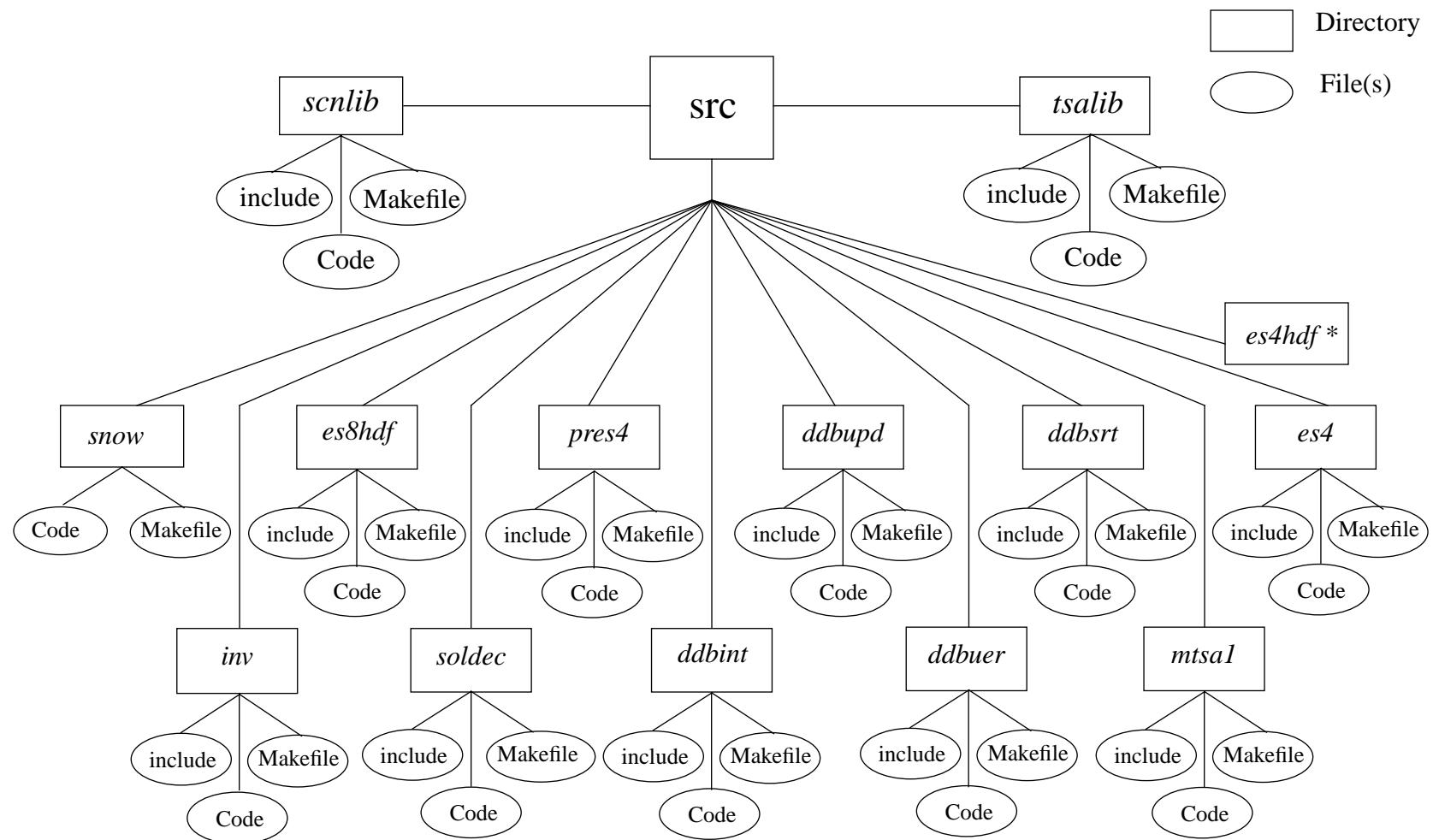
ADM	Angular Distribution Model
CERES	Clouds and the Earth's Radiant Energy System
DDB	Daily Data Base
DAAC	Distributed Active Archive Center
EDVal	ERBE-like Data Validation
EOS	Earth Observing System
ERBE	Earth Radiation Budget Experiment
ERBS	Earth Radiation Budget Satellite
ID	Identification
MTSA	Monthly Time/Space Averaging
NASA	National Aeronautics and Space Administration
NOAA	National Oceanic and Atmospheric Administration
LW	Longwave
PCF	Processing Control File
PGE	Product Generation Executive
QC	Quality Control
SCF	Science Computing Facility
SW	Shortwave
TOA	Top-of-Atmosphere
TOT	Total
TRMM	Tropical Rainfall Measuring Mission

**APPENDIX B**  
**Directory Structure Diagrams**



\*Breakdown of subdirectories shown on  
following pages

Figure B-1. Directory Structure for the ERBE-like Tar File (1 of 8)



\*Breakdown of subdirectories shown on  
following pages

*Italicized names* are dependent on delivered  
software

Figure B-1. Directory Structure for the ERBE-like Tar File (2 of 8)

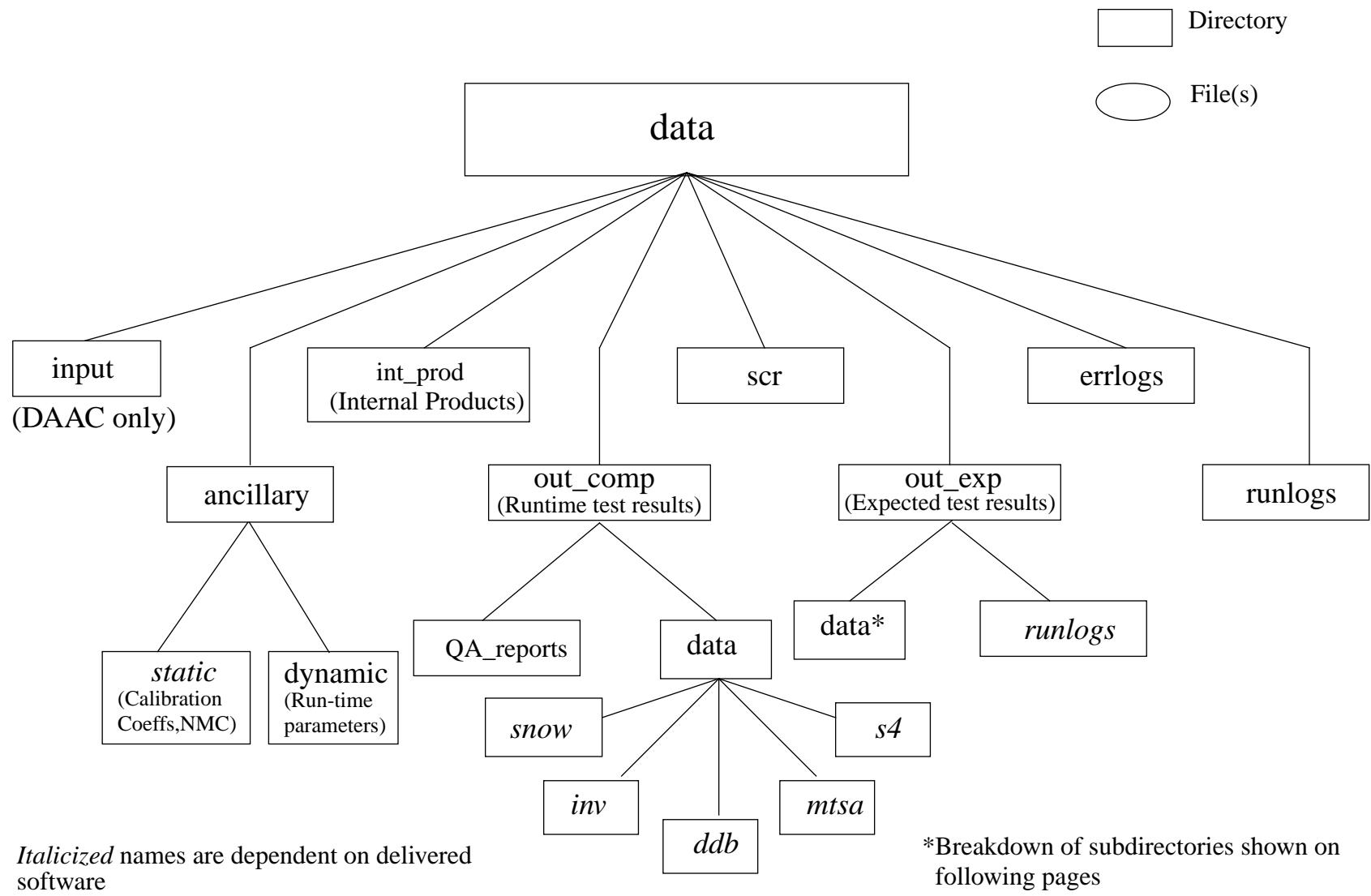
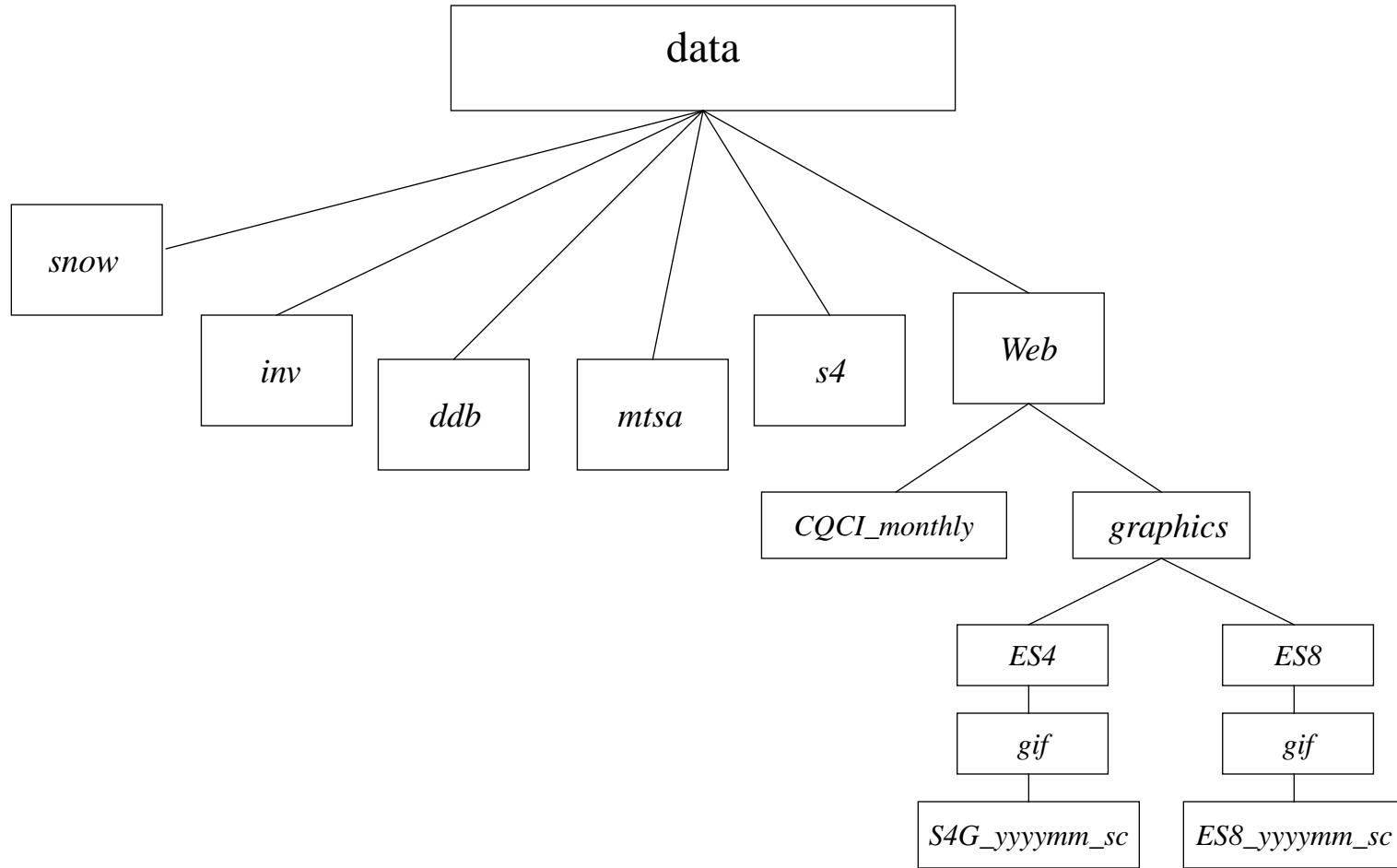


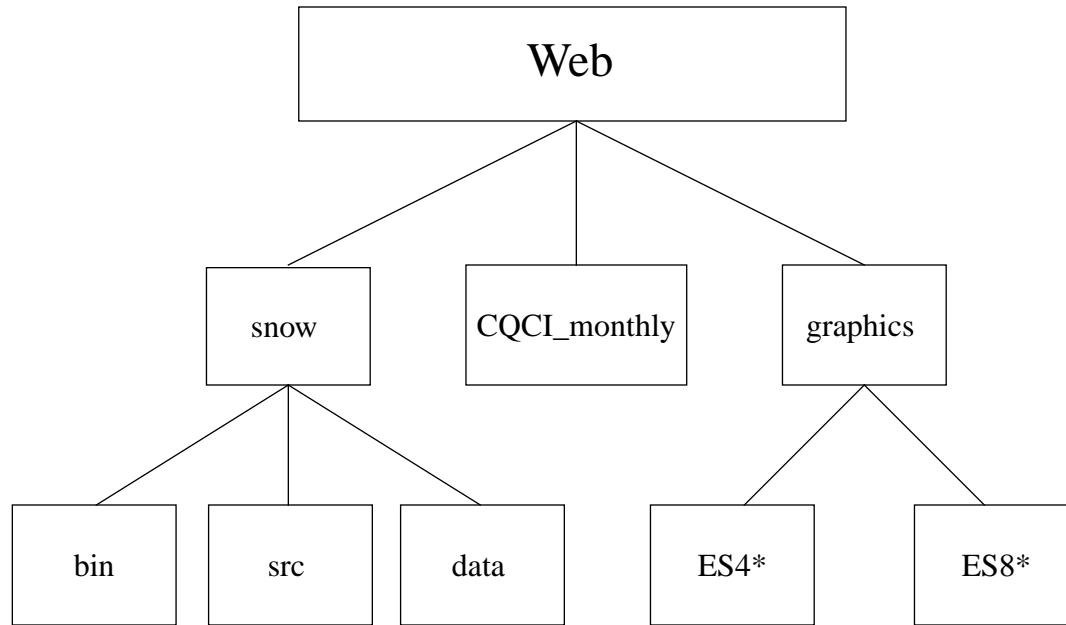
Figure B-1. Directory Structure for the ERBE-like Tar File (3 of 8)



*Italicized* names are dependent on delivered software

*yyyymm* and *sc* appearing in the table represent year and month, and spacecraft, respectively

Figure B-1. Directory Structure for the ERBE-like Tar File (4 of 8)



\*Breakdown of subdirectories shown on following pages

Figure B-1. Directory Structure for the ERBE-like Tar File (5 of 8)

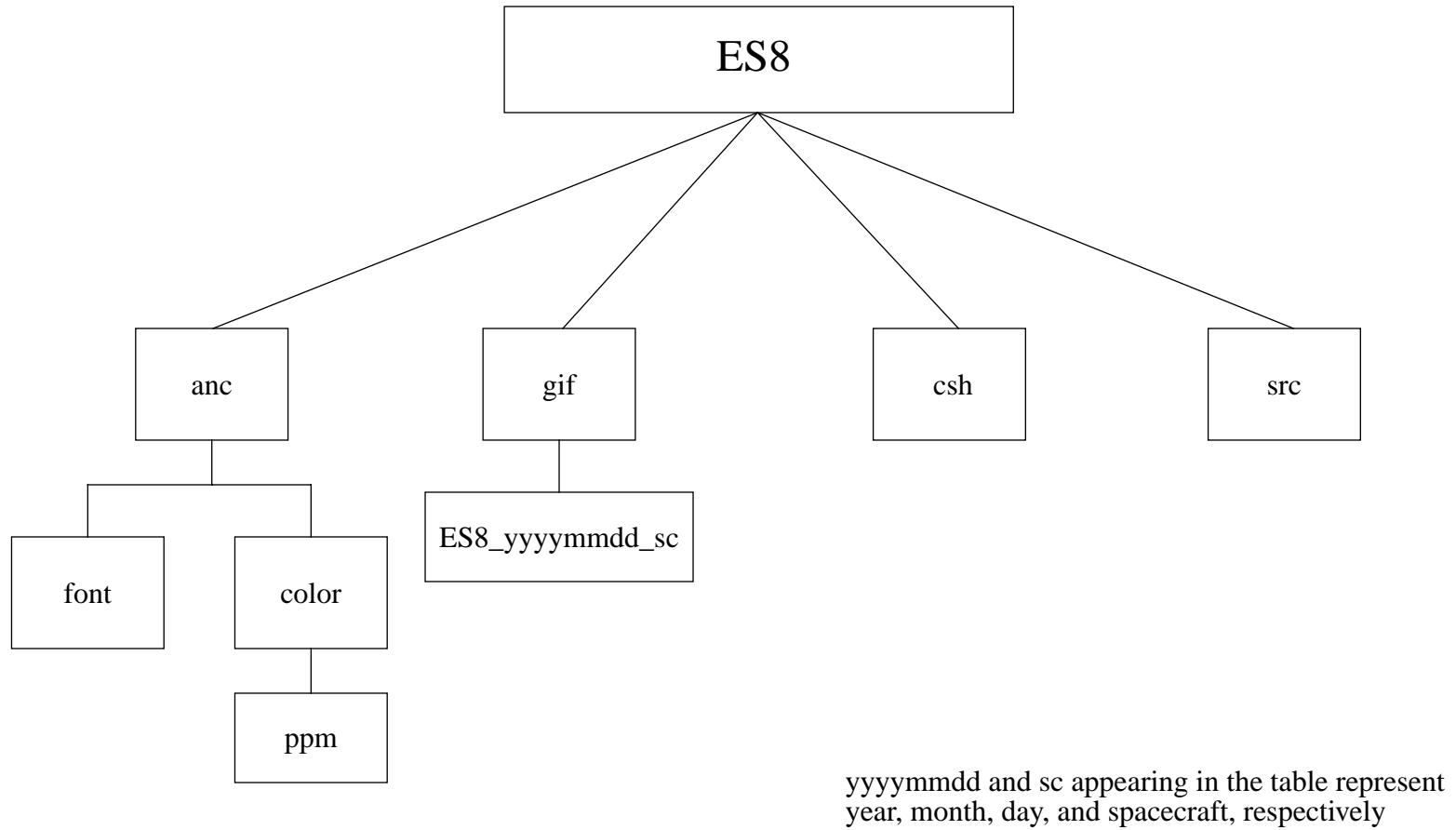
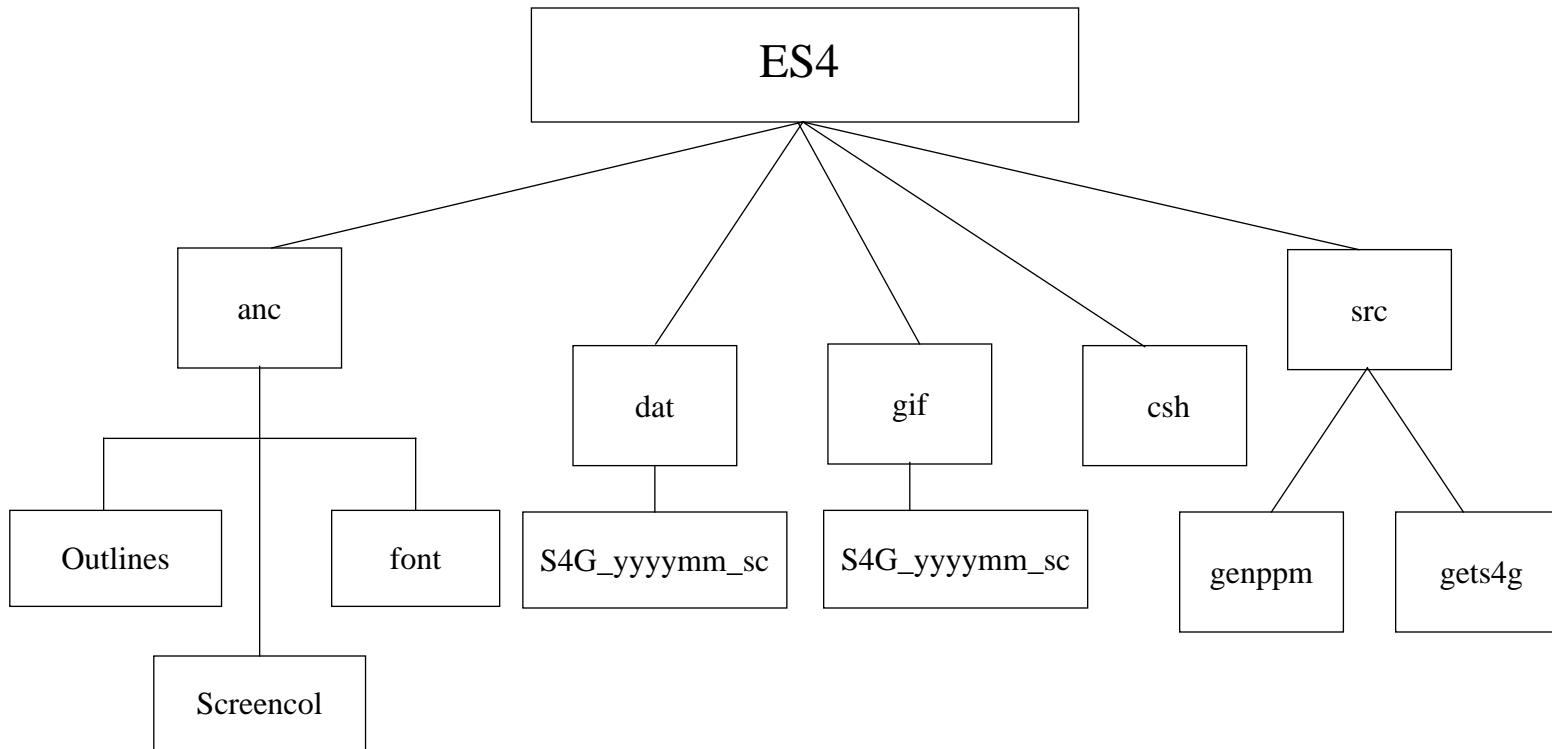


Figure B-1. Directory Structure for the ERBE-like Tar File (6 of 8)



yyyymm and sc appearing in the table represent year and month, and spacecraft, respectively

Figure B-1. Directory Structure for the ERBE-like Tar File (7 of 8)

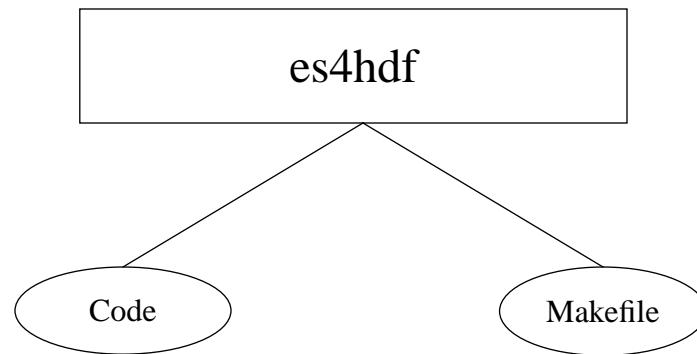


Figure B-1. Directory Structure for the ERBE-like Tar File (8 of 8)

**APPENDIX C**  
**File Descriptions**

## C.1 Production Scripts and Executables

Table C.1-1. Scripts  
(\$CERESHOME/erbelike/bin) (1 of 2)

File Name	Description
README	Contains a description of the files in this directory
CER2.2	C-shell script to run ERBE-like Subsystem 2. It invokes ss2.0 and ss2.1, or ss2.0 and ss2.2
CER2.2P1	C-shell script invokes ERBE-like inversion program, daily data base initialization and daily data update programs to process the daily data from a single satellite when the data date is the first of a month. This script generates an overlap data file for the previous month's monthly processing.
CER2.2P2	C-shell script invokes ERBE-like inversion program to process a day's data from a single satellite when the data date is not the first day of a month
CER2.2P3	
CER2.3	C-shell script invokes ERBE-like HDF production code to produce ES8 HDF-EOS.
CER3.2	C-shell script to run ERBE-like Subsystem 3 for single-satellite data processing
CER3.2P1	C-shell script invokes ERBE-like Daily Data Base (ddbint, ddbupd, ddbuer, and ddbsrt), Monthly Time/Space Averaging (mtsa1), and Monthly Regional, Zonal, and Global Averages (es4) for single satellite monthly data processing
CER3.3	C-shell script invokes ERBE-like HDF production code to produce ES4 HDF-EOS.
clr_dir.CER2.2	C-shell script to clear output data files and directories before executing ss2
clr_dir.CER3.2	C-shell script to clear output data files and directories before executing ss3s
clr_ss2.1p1	C-shell script to clear output data files and directories before executing ss2.1p1
compile_all	C-shell script to compile all ERBE-like programs
gen_ascii.ss2.1p1	C-shell script creating an ASCII input file for PGE2.1P1
gen_pcf.CER2.2	C-shell script creating a PC file for ss2
gen_pcf.CER2.2_input	C-shell script creating an ASCII input file for PGE2.2P1, 2.2P2 or 2.2P3
gen_pcf.CER2.3	C-shell script creating a PC file for CER2.3P1
gen_pcf.CER2.3_input	C-shell script creating an ASCII input file for PGE2.3P1
gen_pcf.CER3.2	C-shell script creating a PC file for ss3s
gen_pcf.CER3.2_input	C-shell script creating an ASCII input file for PGE3.2P1
gen_pcf.CER3.3	C-shell script creating a PC file for CER3.3P1
gen_pcf.CER3.3_input	C-shell script creating an ASCII input file for PGE3.3P1
gen_pcf.ss2.1p1	C-shell script creating a PC file for ss2.1p1
plot_es4	C-shell script invokes es4Allgif to generate monthly ES4 plots for Web pages

Table C.1-1. Scripts  
(\$CERESHOME/erbelike/bin) (2 of 2)

<b>File Name</b>	<b>Description</b>
plot_es8	C-shell script invokes es8Gif to generate daily ES8 plots for Web page
plot_qc	C-shell script invokes combine_qc.pl to generate Inversion monthly QC report file for Web page
ss2.1p1	C-shell script to run ERBE-like Subsystem 2.1P1
./Web/snow/bin/ MonthlyIIGS_Plot.idl	Text file used by IDL to run the monthly IIGS plots for the Web pages

Table C.1-2. Executables  
(\$CERESHOME/erbelike/bin)

<b>File Name</b>	<b>Description</b>
inv	ERBE-like inversion program
ddbint	ERBE-like Daily Data Base Initialization program
ddbupd	ERBE-like Daily Data Base Update program
ddbuer	ERBE-like Daily Data Base Overlap Data Update program
ddbsrt	ERBE-like Daily Data Base Monthly Data Sort program
mtsa1	ERBE-like Single-Satellite Monthly Time/Space Averaging program
pre_es4	ERBE-like program generating monthly regional, zonal, and global averages housekeeping
sol_dec	ERBE-like program generating monthly solar declination file
es4	ERBE-like Monthly Regional, Zonal, and Global Averages program
gen_es4hdf	ERBE-like conversion of ES4G1-4 to ES4 HDF-EOS program
gen_es8hdf	ERBE-like conversion of ES8 to ES8 HDF-EOS program
convert	Freeware executable converting Postscript images to gif images
gen_snow	ERBE-like program generating a monthly snow map file
giftrans	Freeware executable converting normal gif file to transparent gif file
ppmtogif	Freeware executable converting ppm file to gif file

## C.2 Processing Control Files (PCF), Metadata Control Files (MCF)

The Processing Control Files (PCFs) and Metadata Control Files (MCFs) for the ERBE-like Subsystems are listed in [Table C.2-1](#). The particular program for the PCF is indicated by the file

name extension. The MCF is named by the shortname for the particular output/input file with which it is associated.

The version number of all files listed is CERES version 1.0.

Table C.2-1. Processing Control Files  
(\$CERESHOME/erbelike/rcf) (1 of 2)

File Name	Format	Description
README	ASCII	Contains a description of the files in this directory
pcf.CER2.2P1.0	ASCII	Process control file template for <see extension>
pcf.CER2.2P2.0	ASCII	Process control file template for <see extension>
pcf.CER2.2P3.0	ASCII	Process control file template for <see extension>
pcf.CER3.2P1.0	ASCII	Process control file template for <see extension>
CCES8HAB.mcf	ODL	Metadata control file template
CCES8_AB.mcf	ODL	Metadata control file template
CCID6FAB.mcf	ODL	Metadata control file template
CCID6RAB.mcf	ODL	Metadata control file template
CCMSGFAB.mcf	ODL	Metadata control file template
CCMSGRAB.mcf	ODL	Metadata control file template
CCQCDFAB.mcf	ODL	Metadata control file template
CCQCIFAB.mcf	ODL	Metadata control file template
CCQCIRAB.mcf	ODL	Metadata control file template
CCQCR_AA.mcf	ODL	Metadata control file template
CCSNOWAA.mcf	ODL	Metadata control file template
CCXDRFAB.mcf	ODL	Metadata control file template
CD4G1FAB.mcf	ODL	Metadata control file template
CD4G2FAB.mcf	ODL	Metadata control file template
CD4G3FAB.mcf	ODL	Metadata control file template
CD4G4FAB.mcf	ODL	Metadata control file template
CDES4FAB.mcf	ODL	Metadata control file template
CDES9FAB.mcf	ODL	Metadata control file template
CDMSGFAB.mcf	ODL	Metadata control file template
CDQCAFAB.mcf	ODL	Metadata control file template

Table C.2-1. Processing Control Files  
(\$CERESHOME/erbelike/rcf) (2 of 2)

File Name	Format	Description
CDQCBFAB.mcf	ODL	Metadata control file template
CDQCCFAB.mcf	ODL	Metadata control file template
CDQCDFAB.mcf	ODL	Metadata control file template
CDQCGFAB.mcf	ODL	Metadata control file template
CDQCSFAB.mcf	ODL	Metadata control file template
CDQCXFAB.mcf	ODL	Metadata control file template
CDS4HFAB.mcf	ODL	Metadata control file template
CDXDRFAB.mcf	ODL	Metadata control file template

### C.3 Production Source Code and Makefiles

The source code files required for each ERBE-like PGE are shown in [Tables C.3-2](#) through [C.3-14](#).

The version number of all files listed is CERES version 1.0.

Table C.3-1. Fortran 90 Source Code - snow  
(\$CERESHOME/erbelike/src/snow) (1 of 2)

File Name	Format	Description
ERBE_Mod.f90	ASCII	Module to process ERBE Scene ID data
ERBE_QHeader.f90	ASCII	Module to process QC Report header
Grid_Params.f90	ASCII	Module containing regridding parameters
Job_Params.f90	ASCII	Module containing job processing parameters
PostProc.f90	ASCII	Module to process QC Report and Metadata
SNOW_LOGID.f90	ASCII	Module containing Toolkit Logid IDs
Snow_Main.f90	ASCII	Main program for IIGS processing
Snow_Mod.f90	ASCII	Module containing job processing routines
makealbmaps_all.f90	ASCII	Module to process Albedo Threshold calculations
makeallthresholds.f90	ASCII	Module to process Longwave Threshold calculations

Table C.3-1. Fortran 90 Source Code - snow  
(\$CERESHOME/erbelike/src/snow) (2 of 2)

<b>File Name</b>	<b>Format</b>	<b>Description</b>
makecombine_file.f90	ASCII	Module to write the IIGS output file
surfmap_IO.f90	ASCII	Module containing NSIDC processing routines
Makefile	ASCII	Makefile

Table C.3-1.1 Software Management Files- snow  
(\$CERESHOME/erbelike/smf)

<b>File Name</b>	<b>Format</b>	<b>Description</b>
albedo_mod_26526.t	ASCII	Text file for creating the include and message file
combine_mod_26532.t	ASCII	Text file for creating the include and message file
erbe_mod_26530.t	ASCII	Text file for creating the include and message file
postproc_mod_26527.t	ASCII	Text file for creating the include and message file
snow_main_26529.t	ASCII	Text file for creating the include and message file
snow_mod_26528.t	ASCII	Text file for creating the include and message file
surf_io_26550.t	ASCII	Text file for creating the include and message file
thres_mod_26531.t	ASCII	Text file for creating the include and message file
Makefile	ASCII	Makefile

Table C.3-2. Fortran 90 Source Code - inv  
(\$CERESHOME/erbelike/src/inv) (1 of 3)

<b>File Name</b>	<b>Format</b>	<b>Description</b>
actreg.inc	ASCII	Include file
blk.inc	ASCII	Include file
cdates.inc	ASCII	Include file
charcm.inc	ASCII	Include file

Table C.3-2. Fortran 90 Source Code - inv  
(\$CERESHOME/erbelike/src/inv) (2 of 3)

<b>File Name</b>	<b>Format</b>	<b>Description</b>
const.inc	ASCII	Include file
cswoff.inc	ASCII	Include file
dimen.inc	ASCII	Include file
error.inc	ASCII	Include file
fnames.inc	ASCII	Include file
global.inc	ASCII	Include file
hdbuf.inc	ASCII	Include file
id1.inc	ASCII	Include file
id2.inc	ASCII	Include file
intern.inc	ASCII	Include file
inunit.inc	ASCII	Include file
iunit.inc	ASCII	Include file
limits.inc	ASCII	Include file
namglb.inc	ASCII	Include file
nconst.inc	ASCII	Include file
ndimen.inc	ASCII	Include file
nlimit.inc	ASCII	Include file
npatda.inc	ASCII	Include file
npgpar.inc	ASCII	Include file
npoint.inc	ASCII	Include file
nunit.inc	ASCII	Include file
nuspar.inc	ASCII	Include file
optprm.inc	ASCII	Include file
optprm2.inc	ASCII	Include file
optprm3.inc	ASCII	Include file
optprm4.inc	ASCII	Include file
optprm5.inc	ASCII	Include file
optprm6.inc	ASCII	Include file
patdat.inc	ASCII	Include file

Table C.3-2. Fortran 90 Source Code - inv  
(\$CERESHOME/erbelike/src/inv) (3 of 3)

<b>File Name</b>	<b>Format</b>	<b>Description</b>
patset.inc	ASCII	Include file
patstf.inc	ASCII	Include file
pgeparm.inc	ASCII	Include file
point.inc	ASCII	Include file
report.inc	ASCII	Include file
scflag.inc	ASCII	Include file
specor.inc	ASCII	Include file
specor2.inc	ASCII	Include file
swoff.inc	ASCII	Include file
trop.inc	ASCII	Include file
troplw.inc	ASCII	Include file
tsa.inc	ASCII	Include file
usparm.inc	ASCII	Include file
var.inc	ASCII	Include file
inv.f90	ASCII	Inversion source code
Makefile	ASCII	Makefile

Table C.3-3. Fortran 90 Source Code - es8hdf  
(\$CERESHOME/erbelike/src/es8hdf)

<b>File Name</b>	<b>Format</b>	<b>Description</b>
parms.inc	ASCII	Include file
ConvertES8.f90	ASCII	Setup ES8 for conversion into HDF-EOS swath format
MainES8.f90	ASCII	Convert ES8 into HDF-EOS swath format
Makefile	ASCII	Makefile

Table C.3-4. Fortran 90 Source Code - soldec  
(\$CERESHOME/erbelike/src/soldec)

<b>File Name</b>	<b>Format</b>	<b>Description</b>
charcm.inc	ASCII	Include file
fnames.inc	ASCII	Include file
global.inc	ASCII	Include file
sol_dec.f90	ASCII	Solar declination source code
Makefile	ASCII	Makefile

Table C.3-5. Fortran 90 Source Code - pres4  
(\$CERESHOME/erbelike/src/pres4)

<b>File Name</b>	<b>Format</b>	<b>Description</b>
charcm.inc	ASCII	Include file
days.inc	ASCII	Include file
fnames.inc	ASCII	Include file
global.inc	ASCII	Include file
globl.inc	ASCII	Include file
npgpar.inc	ASCII	Include file
pgeparm.inc	ASCII	Include file
plats.inc	ASCII	Include file
resl.inc	ASCII	Include file
sdictb.inc	ASCII	Include file
units.inc	ASCII	Include file
pre_es4.f90	ASCII	ES4 housekeeping file production source code
Makefile	ASCII	Makefile

Table C.3-6. Fortran 90 Source Code - ddbint  
(\$CERESHOME/erbelike/src/ddbint)

<b>File Name</b>	<b>Format</b>	<b>Description</b>
charcm.inc	ASCII	Include file
fnames.inc	ASCII	Include file
global.inc	ASCII	Include file
errlab.int	ASCII	Include file
filnam.int	ASCII	Include file
lengths.int	ASCII	Include file
locnam.int	ASCII	Include file
lrecl.int	ASCII	Include file
minmax.int	ASCII	Include file
namelist.int	ASCII	Include file
outpts.int	ASCII	Include file
sfctrs.int	ASCII	Include file
units.int	ASCII	Include file
ddbint.f90	ASCII	DDB Initialization source code
Makefile	ASCII	Makefile

Table C.3-7. Fortran 90 Source Code - ddbupd  
(\$CERESHOME/erbelike/src/ddbupd) (1 of 2)

<b>File Name</b>	<b>Format</b>	<b>Description</b>
cdates.inc	ASCII	Include file
charcm.inc	ASCII	Include file
fnames.inc	ASCII	Include file
global.inc	ASCII	Include file
npgpar.inc	ASCII	Include file
pgeparm.inc	ASCII	Include file
abinfo.upd	ASCII	Include file

Table C.3-7. Fortran 90 Source Code - ddbupd  
(\$CERESHOME/erbelike/src/ddbupd) (2 of 2)

<b>File Name</b>	<b>Format</b>	<b>Description</b>
dates upd	ASCII	Include file
errlab upd	ASCII	Include file
filnam upd	ASCII	Include file
flgcnt upd	ASCII	Include file
length upd	ASCII	Include file
locnam upd	ASCII	Include file
loghed upd	ASCII	Include file
lrecrd upd	ASCII	Include file
metflg upd	ASCII	Include file
minmax upd	ASCII	Include file
namelist upd	ASCII	Include file
numday upd	ASCII	Include file
outpts upd	ASCII	Include file
rchrcm upd	ASCII	Include file
repts upd	ASCII	Include file
units upd	ASCII	Include file
wrkarr upd	ASCII	Include file
ddbupd.f90	ASCII	DDB Daily Update source code
Makefile	ASCII	Makefile

Table C.3-8. Fortran 90 Source Code - ddbuer  
(\$CERESHOME/erbelike/src/ddbuer) (1 of 2)

<b>File Name</b>	<b>Format</b>	<b>Description</b>
cdates.inc	ASCII	Include file
charcm.inc	ASCII	Include file
dates.inc	ASCII	Include file
fnames.inc	ASCII	Include file

Table C.3-8. Fortran 90 Source Code - ddbuer  
(\$CERESHOME/erbelike/src/ddbuer) (2 of 2)

<b>File Name</b>	<b>Format</b>	<b>Description</b>
global.inc	ASCII	Include file
npgpar.inc	ASCII	Include file
pgeparm.inc	ASCII	Include file
abinfo.uer	ASCII	Include file
flgcnt.uer	ASCII	Include file
length.uer	ASCII	Include file
locnam.uer	ASCII	Include file
loghed.uer	ASCII	Include file
namelist.uer	ASCII	Include file
units.uer	ASCII	Include file
ddbuer.f90	ASCII	DDB Overlap Data Update source code
Makefile	ASCII	Makefile

Table C.3-9. Fortran 90 Source Code - ddbsrt  
(\$CERESHOME/erbelike/src/ddbsrt) (1 of 2)

<b>File Name</b>	<b>Format</b>	<b>Description</b>
cdates.inc	ASCII	Include file
charcm.inc	ASCII	Include file
dates.inc	ASCII	Include file
fnames.inc	ASCII	Include file
global.inc	ASCII	Include file
npgpar.inc	ASCII	Include file
pgeparm.inc	ASCII	Include file
charac.srt	ASCII	Include file
hkparm.srt	ASCII	Include file
hskuns.srt	ASCII	Include file
inpval.srt	ASCII	Include file
namelist.srt	ASCII	Namelist file

Table C.3-9. Fortran 90 Source Code - ddbsrt  
(\$CERESHOME/erbelike/src/ddbsrt) (2 of 2)

File Name	Format	Description
ddbsrt.f90	ASCII	DDB Latitudinal Data Sort source code
Makefile	ASCII	Makefile

Table C.3-10. Fortran 90 Source Code - mtsa1  
(\$CERESHOME/erbelike/src/mtsa1) (1 of 2)

File Name	Format	Description
cdates.inc	ASCII	Include file
cdaver.inc	ASCII	Include file
cdgma.inc	ASCII	Include file
charcm.inc	ASCII	Include file
chaver.inc	ASCII	Include file
chgma.inc	ASCII	Include file
chrdat.inc	ASCII	Include file
consts.inc	ASCII	Include file
dates.inc	ASCII	Include file
daver.inc	ASCII	Include file
dgma.inc	ASCII	Include file
diff.inc	ASCII	Include file
error.inc	ASCII	Include file
fnames.inc	ASCII	Include file
genrl.inc	ASCII	Include file
global.inc	ASCII	Include file
globl.inc	ASCII	Include file
haver.inc	ASCII	Include file
hgma.inc	ASCII	Include file
inunit.inc	ASCII	Include file
latdsc.inc	ASCII	Include file
lrecred.inc	ASCII	Include file
merge.inc	ASCII	Include file
namelist.inc	ASCII	Include file

Table C.3-10. Fortran 90 Source Code - mtsa1  
(\$CERESHOME/erbelike/src/mtsa1) (2 of 2)

<b>File Name</b>	<b>Format</b>	<b>Description</b>
outunt.inc	ASCII	Include file
pack.inc	ASCII	Include file
parm.inc	ASCII	Include file
parm1.inc	ASCII	Include file
pgeparm.inc	ASCII	Include file
scale.inc	ASCII	Include file
scipro.inc	ASCII	Include file
solar.inc	ASCII	Include file
statfl.inc	ASCII	Include file
wlkf.inc	ASCII	Include file
mtsa1.f90	ASCII	Single satellite MTSA source code
Makefile	ASCII	Makefile

Table C.3-11. Fortran 90 Source Code - es4  
(\$CERESHOME/erbelike/src/es4) (1 of 2)

<b>File Name</b>	<b>Format</b>	<b>Description</b>
albed.inc	ASCII	Include file
cdates.inc	ASCII	Include file
charcm.inc	ASCII	Include file
filnam.inc	ASCII	Include file
fnames.inc	ASCII	Include file
global.inc	ASCII	Include file
keybuf.inc	ASCII	Include file
npgpar.inc	ASCII	Include file
otapsm.inc	ASCII	Include file
outrec.inc	ASCII	Include file
pcodes.inc	ASCII	Include file

Table C.3-11. Fortran 90 Source Code - es4  
(\$CERESHOME/erbelike/src/es4) (2 of 2)

<b>File Name</b>	<b>Format</b>	<b>Description</b>
pgeparm.inc	ASCII	Include file
plats.inc	ASCII	Include file
point.inc	ASCII	Include file
record.inc	ASCII	Include file
repts.inc	ASCII	Include file
resls.inc	ASCII	Include file
s4gcnt.inc	ASCII	Include file
s4nray.inc	ASCII	Include file
s4oray.inc	ASCII	Include file
s4parm.inc	ASCII	Include file
s4unit.inc	ASCII	Include file
scnrec.inc	ASCII	Include file
scntyp.inc	ASCII	Include file
subscr.inc	ASCII	Include file
summer.inc	ASCII	Include file
units.inc	ASCII	Include file
weight.inc	ASCII	Include file
es4.f90	ASCII	Monthly Regional, Zonal, and Global Averaging source code
Makefile	ASCII	Makefile

Table C.3-12. Fortran 90 Library Files - es4hdf  
(\$CERESHOME/erbelike/src/es4hdf)

<b>File Name</b>	<b>Format</b>	<b>Description</b>
ConvertES4.f90	ASCII	Setup ES4G1-4 for conversion into HDF-EOS swath format
MainES4.f90	ASCII	Convert ES4G1-4 into HDF-EOS swath format
Makefile	ASCII	Makefile

Table C.3-13. Fortran 90 Library Files - scnlib  
(\$CERESHOME/erbelike/src/scnlib) (1 of 2)

<b>File Name</b>	<b>Format</b>	<b>Description</b>
cdates.inc	ASCII	Include file
charcm.inc	ASCII	Include file
fnames.inc	ASCII	Include file
global.inc	ASCII	Include file
pgeparm.inc	ASCII	Include file
abend.f90	ASCII	Abnormal Termination Utility
attribute.f90	ASCII	Reformat Dates to 27-ASCII for Metadata
caljul.f90	ASCII	Calendar to Julian date Utility
conjul.f90	ASCII	Real Date and Time to Julian date Utility
finutl.f90	ASCII	Finalize Utility
gdahed.f90	ASCII	Read Physical Header Record from a Direct Access File Utility
getfnm.f90	ASCII	Retrieve local filename from a file ID number
getglb.f90	ASCII	Obtain global constant values from CERESlib
gethed.f90	ASCII	Read Physical Header Record from a Sequential File Utility
inutil.f90	ASCII	Initialization Utility
julcal.f90	ASCII	Julian to Calendar date Utility
pgspca.f90	ASCII	Retrieve a Runtime Parameter From PCF Using Toolkit and Convert It to a String
pgspci.f90	ASCII	Retrieve a Runtime Parameter From PCF Using Toolkit and Convert It to an Integer
rdparm.f90	ASCII	Retrieve PGE Runtime Parameters From PCF Using Toolkit
regrep.f90	ASCII	Regional Summary Report Utility
rptdat.f90	ASCII	Dates and Times to Character Format Utility
rptjul.f90	ASCII	Julian Start and End Times to Character Format Utility
strfnm.f90	ASCII	Update input or output file opening information
sysmsg.f90	ASCII	System Message Utility
utlrst.f90	ASCII	Reset Error Message Variables Utility
wrhdm.f90	ASCII	Report Header Utility
yyddd.f90	ASCII	Year, Month, Day to Day of Year Utility

Table C.3-13. Fortran 90 Library Files - scnlib  
(\$CERESHOME/erbelike/src/scnlib) (2 of 2)

<b>File Name</b>	<b>Format</b>	<b>Description</b>
yymmdd.f90	ASCII	Day of Year to Year, Month, Day Utility
Makefile	ASCII	Makefile

Table C.3-14. Fortran 90 Library Files - tsalib  
(\$CERESHOME/erbelike/src/tsalib) (1 of 3)

<b>File Name</b>	<b>Format</b>	<b>Description</b>
cdates.inc	ASCII	Include file
cdaver.inc	ASCII	Include file
cdgma.inc	ASCII	Include file
charcm.inc	ASCII	Include file
chaver.inc	ASCII	Include file
chgma.inc	ASCII	Include file
chrdat.inc	ASCII	Include file
consts.inc	ASCII	Include file
dates.inc	ASCII	Include file
daver.inc	ASCII	Include file
dgma.inc	ASCII	Include file
error.inc	ASCII	Include file
fnames.inc	ASCII	Include file
genrl.inc	ASCII	Include file
global.inc	ASCII	Include file
globl.inc	ASCII	Include file
haver.inc	ASCII	Include file
hgma.inc	ASCII	Include file
inunit.inc	ASCII	Include file
lrecrd.inc	ASCII	Include file
merge.inc	ASCII	Include file
namelist.inc	ASCII	Include file
npgpar.inc	ASCII	Include file

Table C.3-14. Fortran 90 Library Files - tsalib  
(\$CERESHOME/erbelike/src/tsalib) (2 of 3)

File Name	Format	Description
outunt.inc	ASCII	Include file
pack.inc	ASCII	Include file
parm1.inc	ASCII	Include file
pgeparm.inc	ASCII	Include file
scale.inc	ASCII	Include file
scipro.inc	ASCII	Include file
solar.inc	ASCII	Include file
statfl.inc	ASCII	Include file
abend.f90	ASCII	Abnormal Termination Utility
amhlws.f90	ASCII	LW Monthly Hourly Statistics Utility
amhsws.f90	ASCII	SW Monthly Hourly Statistics Utility
avclr.f90	ASCII	Half-sine Fit to Clr LW Utility
avgdly.f90	ASCII	Daily Average Statistics Utility
avints.f90	ASCII	Array Initialization Utility
brkout.f90	ASCII	Box No. to Hour, Day Conversion Utility
cdrans.f90	ASCII	Regional Averaging Utility
cgmasc.f90	ASCII	Regional Statistics over a Month Utility
clsesf.f90	ASCII	Create Metadata Files Utility
coszsc.f90	ASCII	Cosine of Solar Zenith Angle Utility
defpcv.f90	ASCII	Define Processing Control Vector Utility
dimods.f90	ASCII	Calculate SW Directional Values Utility
dswabs.f90	ASCII	Correct SW Radiant Exitance Utility
dyhras.f90	ASCII	Compute Daily & Monthly Averages and Statistics Utility
extras.f90	ASCII	Extrapolation Utility
finutl.f90	ASCII	Finalize Utility
fllins.f90	ASCII	Interpolation Utility
inday.f90	ASCII	Compute Hour Index Utility
initsc.f90	ASCII	Read Namelist & Load Tables Utility
inters.f90	ASCII	Interpolation Utility

Table C.3-14. Fortran 90 Library Files - tsalib  
(\$CERESHOME/erbelike/src/tsalib) (3 of 3)

<b>File Name</b>	<b>Format</b>	<b>Description</b>
iscval.f90	ASCII	Fill Value Utility
ldtbls.f90	ASCII	Read Ancillary Data Utility
lwfill.f90	ASCII	Longwave Interpolation Utility
lwmod.f90	ASCII	Apply the LW Model Utility
pgsio.f90	ASCII	Open or close files using pgs toolkit routines
prstat.f90	ASCII	Print SW & LW Statistics Utility
prtpcv.f90	ASCII	Print Utility
regrpt.f90	ASCII	Regional Summary QC Report Utility
repcv.f90	ASCII	Local Solar Hour Fill Utility
ritesc.f90	ASCII	Write Output to Tape Product Utility
simavg.f90	ASCII	Statistics Utility
split.f90	ASCII	Split Value into Two Parts Utility
stddev.f90	ASCII	Compute Standard Deviation Utility
stdev1.f90	ASCII	Compute Standard Deviation Utility
swfill.f90	ASCII	Shortwave Interpolation Utility
sysmsg.f90	ASCII	System Message Utility
trnsms.f90	ASCII	Data Transfer Utility
trnsrs.f90	ASCII	Data Transfer Utility
trnsss.f90	ASCII	Data Transfer Utility
Makefile	ASCII	Makefile

## C.4 Ancillary Input Data

The ancillary data files used by the ERBE-like Subsystems are listed in [Table C.4-1](#) with a brief description of each file and sizing information.

Table C.4-1. Ancillary Input Data  
(\$CERESHOME/erbelike/data/ancillary/static)

File Name	Format	Description
README	ASCII	Contains a description of the files in this directory
BIILWss.yyyymmdd	Binary	Four ERBE binary seasonally varying scene identification algorithm parameter files for the Inversion program using old ADMs
BIISW02.yyyymmdd	Binary	ERBE binary temporally invariant scene identification algorithm parameter file for the inversion program using old ADMs
ISDM2.yyyymmdd	Binary	ERBE binary direction model file for MTSA programs
NIISCsss.yyyymmdd <sup>1</sup>	Binary	Binary spectral correction algorithm parameter file for the Inversion program using old ADMs
NIPSC.yyyymmdd	ASCII	One namelist file for Inversion Subsystem for CERES data processing using new ADMs and new LW thresholds
SNOW_COMPOSITE_MM.yyyymmdd	Binary	Binary monthly varying scene identification algorithm parameter files for the Inversion program
baseline.map.19971101	ASCII	ERBE GeoScene Types of static Ocean, Land, Desert and Coast
combaut.19980130	Binary	ERBE binary seasonally varing albedo thresholds
combspr.19980130	Binary	ERBE binary seasonally varing albedo thresholds
combsum.19980130	Binary	ERBE binary seasonally varing albedo thresholds
combwin.19980130	Binary	ERBE binary seasonally varing albedo thresholds
indx_EASE_dat.19971101	Binary	EASE indexes for grid transformation from Polar Stereographic grid data to Equal Angle grid
psnow.map.19971231	Binary	ERBE GeosScene Type of Permanent Snow regions

<sup>1</sup>. All references in this table to dd = creation day, DD = data day, mm = creation month, MM = data month, ss = season, sss = spacecraft code, yyyy = creation year and YYYY = data year

## C.5 Primary Input Data

To verify that the Inversion code was properly ported from samantha to the DAAC only requires that one day be run through Subsystem 2.0. Two pre-ES8s are included in this Release 2 Delivery, and are detailed in [Table C-14](#).

The input for MTSA (Subsystem 3.0) was generated on samantha and was included in the tar file (see Section 3.0).

Table C.5-1. Primary Input Data  
(\$CERESHOME/)

File Name	Format	Location	Description
NISE_SSMIF13_199801DD.HDF EOS	Binary	erbelike/data/input	December NSIDC snow and ice dat files for testing
CER_PRES8_TRMM- PFM_ValidationR2_000020.1998 0101	Binary	instrument/data/ out_comp	Pre-ES8 file created from the ERBE S8 files stored at the DAAC for PGE2.2P1 or PGE2.2P3
CER_PRES8_TRMM- PFM_ValidationR2_000020.1997 1231	Binary	instrument/data/ out_comp	Pre-ES8 file created from the ERBE S8 files stored at the DAAC for PGE2.2P1, PGE2.2P2 or PGE2.2P3
CER_ES8B_TRMM- PFM_ValidationR2_000000.1997 1231	Binary	erbelike/data/ out_comp/data/inv	ES8 generated from Subsystem 2.0, input for PGE2.3P1
CER_EID6F_TRMM- PFM_ValidationR2_000000.1998 0101	Binary	erbelike/data/ out_comp/data/inv	Internal data product for PGE3.2P1
CER_CXDRF_TRMM- PFM_ValidationR2_000000.1998 0101	Binary	erbelike/data/ out_comp/data/dbb	Overlap data product
CER_ES4F_TRMM- PFM_ValidationR2_000000.1997 12	Binary	erbelike/data/ out_comp/data/s4	Subsystem 3.0 product, input for PGE3.3P1.
CER_ES4G1_TRMM- PFM_ValidationR2_000000.1997 12	Binary	erbelike/data/ out_comp/data/s4	Subsystem 3.0 product, input for PGE3.3P1.
CER_ES4G2_TRMM- PFM_ValidationR2_000000.1997 12	Binary	erbelike/data/ out_comp/data/s4	Subsystem 3.0 product, input for PGE3.3P1.
CER_ES4G3_TRMM- PFM_ValidationR2_000000.1997 12	Binary	erbelike/data/ out_comp/data/s4	Subsystem 3.0 product, input for PGE3.3P1.
CER_ES4G4_TRMM- PFM_ValidationR2_000000.1997 12	Binary	erbelike/data/ out_comp/data/s4	Subsystem 3.0 product, input for PGE3.3P1.

## C.6 Output Data Files (Expected Results)

Table C.6-1 contains ERBE-like output files that were generated on samantha and ported to the DAAC.

Table C.6-1. Data and Metadata Products  
(\$CERESHOME/erbelike/data/out\_exp/data/) (1 of 3)

File Name	Format	Location	Description
CERESfmt_199801.map	ASCII	snow	Archival data product
CERESScr_199801.gif	Binary	snow	Archival data product
CERESScr_199801.ps	ASCII	snow	Archival data product
CERESweb_199801.map	ASCII	snow	Archival data product
CER_SNOW_CERES_ValidationR2_000000.199801	Binary	snow	Archival data product
CER_SNOW_CERES_ValidationR2_000000.199801.met	ODL	snow	Metadata product
CER_ES8B_TRMM-PFM_ValidationR2_000000.19980101	Binary	inv	Archival data product
CER_ES8B_TRMM-PFM_ValidationR2_000000.19980101.met	ODL	inv	Metadata product
CER_ES8B_TRMM-PFM_ValidationR2_000000.19971231	Binary	inv	Archival data product
CER_ES8B_TRMM-PFM_ValidationR2_000000.19971231.met	ODL	inv	Metadata product
CER_EID6F_TRMM-PFM_ValidationR2_000000.19980101	Binary	inv	Internal data product
CER_EID6F_TRMM-PFM_ValidationR2_000000.19980101.met	ODL	inv	Metadata product
CER_EID6F_TRMM-PFM_ValidationR2_000000.19971231	Binary	inv	Internal data product
CER_EID6F_TRMM-PFM_ValidationR2_000000.19971231.met	ODL	inv	Metadata product
CER_EID6R_TRMM-PFM_ValidationR2_000000.19971231	Binary	inv	Internal data product
CER_EID6R_TRMM-PFM_ValidationR2_000000.19971231.met	ODL	inv	Metadata product
CER_CXDRF_TRMM-PFM_ValidationR2_000000.19980101	Binary	ddb	Overlap data product
CER_CXDRF_TRMM-PFM_ValidationR2_000000.19980101.met	ODL	ddb	Metadata product
CER_ES8_TRMM-PFM_ValidationR2_000000.19971231	HDF-EOS	inv	HDF-EOS Archival data product

Table C.6-1. Data and Metadata Products  
(\$CERESHOME/erbelike/data/out\_exp/data/) (2 of 3)

<b>File Name</b>	<b>Format</b>	<b>Location</b>	<b>Description</b>
CER_ES8_TRMM- PFM_ValidationR2_000000.19971231.met	ODL	inv	Metadata product
CER_DXDRAFTMM- PFM_ValidationR2_000000.19981231	Binary	ddb	Overlap data product
CER_DXDRAFTMM- PFM_ValidationR2_000000.19981231.met	ODL	ddb	Metadata product
CER_DES9F_TRMM- PFM_ValidationR2_000000.199712	Binary	mtsa	Archival header product
CER_DES9F_TRMM- PFM_ValidationR2_000000.199712.met	ODL	mtsa	Metadata product
CER_ES4F_TRMM- PFM_ValidationR2_000000.199712	Binary	s4	Archival data product
CER_ES4F_TRMM- PFM_ValidationR2_000000.199712.met	ODL	s4	Metadata product
CER_ES4G1_TRMM- PFM_ValidationR2_000000.199712	Binary	s4	Archival data product
CER_ES4G1_TRMM- PFM_ValidationR2_000000.199712.met	ODL	s4	Metadata product
CER_ES4G2_TRMM- PFM_ValidationR2_000000.199712	Binary	s4	Archival data product
CER_ES4G2_TRMM- PFM_ValidationR2_000000.199712.met	ODL	s4	Metadata product
CER_ES4G3_TRMM- PFM_ValidationR2_000000.199712	Binary	s4	Archival data product
CER_ES4G3_TRMM- PFM_ValidationR2_000000.199712.met	ODL	s4	Metadata product
CER_ES4G4_TRMM- PFM_ValidationR2_000000.199712	Binary	s4	Archival data product
CER_ES4G4_TRMM- PFM_ValidationR2_000000.199712.met	ODL	s4	Metadata product
CER_ES4_TRMM- PFM_ValidationR2_000000.199712	Binary	s4	HDF-EOS Archival data product
CER_ES4_TRMM- PFM_ValidationR2_000000.199712.met	ODL	s4	Metadata product
CQCI?_scname.YYYYMM <sup>1</sup>	ASCII	Web/ CQCI_monthly	ERBE-like Inversion monthly QC report file
ES8_YYYYMMDD_sc_dtype.gif	Binary	Web/graphics/ ES8/gif/ ES8_YYYYMM DD_sc/ ES8_YYYYMM DD_sc	ERBE-like ES8 plot gif file

**Table C.6-1. Data and Metadata Products**  
(\$CERESHOME/erbelike/data/out\_exp/data/) (3 of 3)

<b>File Name</b>	<b>Format</b>	<b>Location</b>	<b>Description</b>
MH_ALB_R2520.gif	Binary	Web/graphics/ ES4/gif/ S4G_YYMM_sc	ERBE-like ES4 plot gif file
MH_CS_ALB_R2520.gif	Binary	Web/graphics/ ES4/gif/ S4G_YYMM_sc	ERBE-like ES4 plot gif file
MH_CS_LW_R2520.gif	Binary	Web/graphics/ ES4/gif/ S4G_YYMM_sc	ERBE-like ES4 plot gif file
MH_CS_SW_R2520.gif	Binary	Web/graphics/ ES4/gif/ S4G_YYMM_sc	ERBE-like ES4 plot gif file
MH_LW_R2520.gif	Binary	Web/graphics/ ES4/gif/ S4G_YYMM_sc	ERBE-like ES4 plot gif file
MH_SW_R2520.gif	Binary	Web/graphics/ ES4/gif/ S4G_YYMM_sc	ERBE-like ES4 plot gif file

<sup>1</sup>. All references in this table to ?="F" for FAPS or "R" for RAPS; sname=spacecraft name; sc=spacecraft number; YYYY=4-digit data year; MM=2-digit data month; DD=2-digit data day; dtype=data or parameter type

## C.7 Output Data Files (Production Results)

Output data is found in \$erbelike/data/out\_comp/data and the file names should be the same as in Table C-15 for Expected Output Results.

Table C-16 contains ERBE-like run logs that were generated on samantha and ported to the DAAC

**Table C.7-1. Message Files**  
(\$CERESHOME/erbelike/data/runlogs) (1 of 2)

<b>File Name</b>	<b>Format</b>	<b>Description</b>
PGEName_LogReport_TRMM- PFM_ValidationR2_000000.19971231 <sup>1</sup>	ASCII	Log file resulting from testing
PGEName_LogStatus_TRMM- PFM_ValidationR2_000000.19971231	ASCII	Log file resulting from testing
PGEName_LogUser_TRMM- PFM_ValidationR2_000000.19971231	ASCII	Log file resulting from testing
PGEName_LogReport_TRMM- PFM_ValidationR2_000000.19980101	ASCII	Log file resulting from testing

**Table C.7-1. Message Files**  
 (\$CERESHOME/erbelike/data/runlogs) (2 of 2)

<b>File Name</b>	<b>Format</b>	<b>Description</b>
PGEName_LogStatus_TRMM-PFM_ValidationR2_000000.19980101	ASCII	Log file resulting from testing
PGEName_LogUser_TRMM-PFM_ValidationR2_000000.19980101	ASCII	Log file resulting from testing.
PGEName_LogReport_TRMM-PFM_ValidationR2_000000.199712	ASCII	Log file resulting from testing.
PGEName_LogStatus_TRMM-PFM_ValidationR2_000000.199712	ASCII	Log file resulting from testing.
PGEName_LogUser_TRMM-PFM_ValidationR2_000000.199712	ASCII	Log file resulting from testing.
CER_CMSGF_TRMM-PFM_ValidationR2_000000.19980101	ASCII	Message file from PGE 2.2P1
CER_CMSGF_TRMM-PFM_ValidationR2_000000.19980101.met	ODL	Metadata file
CER_CMSGF_TRMM-PFM_ValidationR2_000000.19971231	ASCII	Message file from PGE 2.2P2
CER_CMSGF_TRMM-PFM_ValidationR2_000000.19971231.met	ODL	Metadata file
CER_CMSPR_TRMM-PFM_ValidationR2_000000.19980101	ASCII	Message file from PGE 2.2P3
CER_CMSPR_TRMM-PFM_ValidationR2_000000.19980101.met	ODL	Metadata file
CER_CMSPR_TRMM-PFM_ValidationR2_000000.19971231	ASCII	Message file from PGE 2.2P3
CER_CMSPR_TRMM-PFM_ValidationR2_000000.19971231.met	ODL	Metadata file
CER_DMSGF_TRMM-PFM_ValidationR2_000000.199712	ASCII	Message file from PGE 3.2P1
CER_DMSGF_TRMM-PFM_ValidationR2_000000.199712.met	ODL	Metadata file

<sup>1</sup>. PGEName = CER2.2P1, CER2.2P2, CER2.2P3, or CER2.3P1

## C.8 Output Temporary Data Files

## C.9 Error and Status Message Files (Expected Results)

[Table C.9-1](#) lists the Quality Control (QC) reports and [Table C.9-2](#) lists the Message files that were generated on samantha and ported to the DAAC.

**Table C.9-1. QC Reports**  
(\$CERESHOME/erbelike/data/out\_exp/data/)

<b>File Name</b>	<b>Format</b>	<b>Location</b>	<b>Description</b>
CER_CQCR_TRMM-PFM_ValidationR2_000000.199801	ASCII	snow	QC report from PGE2.1P1
CER_CQCR_TRMM-PFM_ValidationR2_000000.199801.met	ODL	snow	Metadata file
CER_CQCIF_TRMM-PFM_ValidationR2_000000.19980101	ASCII	inv	Inversion QC report from PGE2.2P1 or PGE2.2P2
CER_CQCIF_TRMM-PFM_ValidationR2_000000.19980101.met	ODL	inv	Metadata file
CER_CQCIF_TRMM-PFM_ValidationR2_000000.19971231	ASCII	inv	Inversion QC report from PGE2.2P1 or PGE2.2P2
CER_CQCIF_TRMM-PFM_ValidationR2_000000.19971231.met	ODL	inv	Metadata file
CER_CQCIR_TRMM-PFM_ValidationR2_000000.19971231	ASCII	inv	Inversion QC report from PGE2.2P3
CER_CQCIR_TRMM-PFM_ValidationR2_000000.19971231.met	ODL	inv	Metadata file
CER_CQCDF_TRMM-PFM_ValidationR2_000000.19980101	ASCII	ddb	DDB daily update QC reports
CER_CQCDF_TRMM-PFM_ValidationR2_000000.19980101.met	ODL	ddb	Metadata file
CER_DQCDF_TRMM-PFM_ValidationR2_000000.199712	ASCII	ddb	DDB daily update QC reports
CER_DQCDF_TRMM-PFM_ValidationR2_000000.199712.met	ODL	ddb	Metadata file
CER_DQCSF_TRMM-PFM_ValidationR2_000000.199712	ASCII	ddb	DDB latitudinal data sort QC reports
CER_DQCSF_TRMM-PFM_ValidationR2_000000.199712.met	ODL	ddb	Metadata file
CER_DQCXF_TRMM-PFM_ValidationR2_000000.199712	ASCII	ddb	DDB overlap QC reports
CER_DQCXF_TRMM-PFM_ValidationR2_000000.199712.met	ODL	ddb	Metadata file
CER_DQCAF_TRMM-PFM_ValidationR2_000000.199712	ASCII	mtsa	Single satellite MTSA QC reports
CER_DQCAF_TRMM-PFM_ValidationR2_000000.199712.met	ODL	mtsa	Metadata file
CER_DQCBF_TRMM-PFM_ValidationR2_000000.199712	ASCII	mtsa	Single satellite MTSA QC reports
CER_DQCBF_TRMM-PFM_ValidationR2_000000.199712.met	ODL	mtsa	Metadata file
CER_DQCCF_TRMM-PFM_ValidationR2_000000.199712	ASCII	mtsa	Single satellite MTSA QC reports
CER_DQCCF_TRMM-PFM_ValidationR2_000000.199712.met	ODL	mtsa	Metadata file
CER_DQCGF_TRMM-PFM_ValidationR2_000000.199712	ASCII	s4	Monthly ES4/4G QC reports
CER_DQCGF_TRMM-PFM_ValidationR2_000000.199712.met	ODL	s4	Metadata file

**Table C.9-2. Runlogs**  
 (\$CERESHOME/erbelike/data/out\_exp/runlogs)

<b>File Name</b>	<b>Format</b>	<b>Description</b>
CER_CMSGF_TRMM-PFM_ValidationR2_000000.19980101	ASCII	Message file from PGE 2.2P1 or PGE2.2P2
CER_CMSGF_TRMM-PFM_ValidationR2_000000.19980101.met	ODL	Metadata file
CER_CMSGF_TRMM-PFM_ValidationR2_000000.19971231	ASCII	Message file from PGE 2.2P1 or PGE2.2P2
CER_CMSGF_TRMM-PFM_ValidationR2_000000.19971231.met	ODL	Metadata file
CER_CMSGR_TRMM-PFM_ValidationR2_000000.19980101	ASCII	Message file from PGE 2.2P3
CER_CMSGR_TRMM-PFM_ValidationR2_000000.19980101.met	ODL	Metadata file
CER_CMSGR_TRMM-PFM_ValidationR2_000000.19971231	ASCII	Message file from PGE 2.2P3
CER_CMSGR_TRMM-PFM_ValidationR2_000000.19971231.met	ODL	Metadata file
CER_DMSGF_TRMM-PFM_ValidationR2_000000.199712	ASCII	Message file from PGE 3.2P1
CER_DMSGF_TRMM-PFM_ValidationR2_000000.199712.met	ODL	Metadata file

## C.10 Test Evaluation Software

Table C.10-1. Comparison Software  
(\$CERESHOME/erbelike/test\_suites)

File Name	Format	Description
README	ASCII	Contains a description of the files in this directory
cmp_es4.f90	ASCII	ES4 comparison source code
cmp_es4g.f90	ASCII	ES4G comparison source code
cmp_es8.f90	ASCII	ES8 comparison source code
cmp_es9.f90	ASCII	ES9 comparison source code
cmp_iigs.f90	ASCII	Snow comparison source code
f90_kind.f90	ASCII	F90 Compiler Specific KIND Values Utility
Makefile.es4	ASCII	Makefile for ES4 comparison source code
Makefile.es4g	ASCII	Makefile for ES4G comparison source code
Makefile.es8	ASCII	Makefile for ES8 comparison source code
Makefile.es9	ASCII	Makefile for ES9 comparison source code
Makefile.iigs	ASCII	Makefile for Snow comparison source code

## C.11 Web Application Files

### C.11.1 ERBE-like Inversion Monthly QC Reports

Table C.11.1-1.ERBE-like Inversion Monthly QC Reports  
(\$CERESHOME/erbelike/Web/CQCI\_monthly)

File Name	Type	Description
README	ASCII	Contains a description of the files in this directory
combine_qc.pl	Perl Program	Generates/updates the ERBE-like Inversion monthly QC report file

### C.11.2 ES-4 and ES-8 Graphics

Table C.11.2-1. Source Code - ES8  
(\$CERESHOME/erbelike/Web/graphics/ES8/src) (1 of 2)

File Name	Type	Description
README	ASCII	Explains how to compile and run program
ClosePlot.C	C Program	Clean up memory allocated for the plot
ConvertDatPpm.dat.C	C Program	Convert data to ppm formated data
ConvertScenelDdat.C	C Program	Convert ScencelD data to ppm formated data
DefRgbCol.C	C Program	Define RGB color
DefSceneRgbCol.C	C Program	Define Scence rgb color
GenEs8Ppm.C	C Program	Main program to generate ES8 plot
GenEs8SenID.C	C Program	Main program to generate ES8 scence plot
GenPpmFile.C	C Program	Write ppm data to a file
InitMap.C	C Program	Initialization for the map
InitPlot.C	C Program	Initialization for the plot
Map2Plot.C	C Program	Convert map data to plot data
NtFont.C	C Program	Read in a font file
PlotBar.C	C Program	Plot the color bar
PlotLabels.C	C Program	Plot labels
PlotLine.C	C Program	Plot line
PlotPoint.C	C Program	Plot point

Table C.11.2-1. Source Code - ES8  
(\$CERESHOME/erbelike/Web/graphics/ES8/src) (2 of 2)

File Name	Type	Description
PlotRect.C	C Program	Plot rectangle
PlotSceneBar.C	C Program	Plot the scene ID color bar
PlotString.C	C Program	Plot string
Project.C	C Program	Project data
ReadEs8.C	C Program	Read ES8 data
ReadMap.C	C Program	Read map data
ReadPpmHvs.C	C Program	Read HVS color data

Table C.11.2-2. Include Files - ES8  
(\$CERESHOME/erbelike/Web/graphics/ES8/src)

File Name	Type	Description
NtFont.h	C program	Include file
es8.h	C program	Include file
es8_scene.h	C program	Include file
f77.h	C program	Include file
plot_bar.h	C program	Include file
plot_func.h	C program	Include file
plot_gen.h	C program	Include file
plot_head.h	C program	Include file
plot_include.h	C program	Include file
plot_map.h	C program	Include file
plot_ppm.h	C program	Include file
plot_proj.h	C program	Include file
plot_var.h	C program	Include file

Table C.11.2-3. Scripts - ES8  
(\$CERESHOME/erbelike/Web/graphics/ES8/csh)

<b>File Name</b>	<b>Type</b>	<b>Description</b>
README	ASCII	Information regarding csh scripts
envInit	csh script	Setup environment variable for plot
es8Gif	csh script	Script to generate ES8 plots for a given date

Table C.11.2-4. Ancillary Data - ES8  
(\$CERESHOME/erbelike/Web/graphics/ES8/anc)

<b>File Name</b>	<b>Type</b>	<b>Description</b>
mapdata.cod	Binary	global map data
color/ppm/c.dd <sup>1</sup>	Binary	color data for screen only
font/cour.b.dd <sup>2</sup>	Binary	font data for couris bold
font/cour.r.dd <sup>2</sup>	Binary	font data for couris regular
font/screen.b.dd <sup>2</sup>	Binary	font data for screen bold
font/screen.r.dd <sup>2</sup>	Binary	font data for screen regular

<sup>1</sup>. dd is the number of colors used in the given file

<sup>2</sup>. dd is the font size in the given font file

Table C.11.2-5. Source Code - ES4  
(\$CERESHOME/erbelike/Web/graphics/ES4/src) (1 of 2)

<b>File Name</b>	<b>Type</b>	<b>Description</b>
README	ASCII	Explain how to compile and run programs
gets4g/s4g_get.c	C program	Reading ES4 data
gets4g/s4g.h	C program	include file
genppm/catoi.c	C program	convert string to integer
genppm/cexit.c	C program	exit program
genppm/defcols.f	fortran program	define color

Table C.11.2-5. Source Code - ES4  
(\$CERESHOME/erbelike/Web/graphics/ES4/src) (2 of 2)

<b>File Name</b>	<b>Type</b>	<b>Description</b>
genppm/drawbar.f	fortran program	draw bar
genppm/gbytes.c	C program	bytes converting tool
genppm/genppm.f	fortran program	convert data to a ppm file
genppm/histb.f	fortran program	print color table contents
genppm/hvsrgb2.f	fortran program	convert hvs to rgb color
genppm/io.c	C program	I/O routines
genppm/labels.f	fortran program	write strings
genppm/lineplt.f	fortran program	plot line
genppm/mcolor.f	fortran program	computer colors needed
genppm/note.f	fortran program	write a letter
genppm/noteo.f	fortran program	plot string
genppm/number.f	fortran program	plot number
genppm/one_glyph.f	fortran program	convert font data to bitmap
genppm/plotmap.f	fortran program	plot map
genppm/pntfill.f	fortran program	plot point
genppm/project.f	fortran program	project data
genppm/s4_gen_ppm.f	fortran program	main program to generate plot
genppm/tgif.f	fortran program	plot font
genppm/widelin.f	fortran program	plot thick line
gets4g/makefile	ASCII	makefile
genppm/makefile	ASCII	makefile

Table C.11.2-6. Scripts - ES4  
(\$CERESHOME/erbelike/Web/graphics/ES4/csh)

<b>File Name</b>	<b>Type</b>	<b>Description</b>
es4gAllgif	csh script	script to generate ES4 plots for a given month
es4gGif	csh script	script to generate ES4 plot for a specific parameter

Table C.11.2-7. Ancillary Data - ES4  
(\$CERESHOME/erbelike/Web/graphics/ES4/anc)

File Name	Type	Description
Outlines/mapdata.cod	ASCII	global map data
Screencol/c.dd <sup>1</sup>	ASCII	color data for screen only
font/README	ASCII	information on font data
font/cour.b.dd <sup>2</sup>	Binary	font data for couris bold
font/cour.r.dd <sup>2</sup>	Binary	font data for couris regular
font/screen.b.dd <sup>2</sup>	Binary	font data for screen bold
font/screen.r.dd <sup>2</sup>	Binary	font data for screen regular

<sup>1</sup>. dd is the number of colors used in the given file.

<sup>2</sup>. dd is the font size in the given font file.

### C.11.3 ERBE-like Graphics for Snow Ancillary Data

Table C.11.3-1. ERBE-like Graphics for Snow Ancillary Data  
(\$CERESHOME/erbelike/Web/snow/src)

File Name	Type	Description
color_bar.pro	ASCII	IDL module containing color bar routines
color_ranges.pro	ASCII	IDL module containing color ranges for the data
color_tbls.pro	ASCII	IDL module containing color tables
nMonthlyIIGS_Plot.pro	ASCII	IDL program to create the ERBE GeoScene Map